CFS-500

US Model
Canadian Model

FM/AM STEREO CASSETTE-CORDER

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 3.2-ohm loads, both channels driven, from 150–10,000 Hz; rated 2.5 watts per channel minimum RMS power, with no more than 10% total harmonic distortion.

OTHER SPECIFICATIONS

Radio section

Frequency range	FM 87.5–108 MHz AM 530–1,605 kHz (566–187 m)
Antennas	FM: Telescopic antenna AM: Built-in ferrite bar antenna

Tape recorder section and general

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 1 min. 30 sec. with Sony Cassette C-60
Frequency response	60 Hz—10 kHz
S/N	40 dB
Total harmonic distortion	5%
Wow and flutter	0.1% (WRMS)
Speakers	Two-way: Approx. 16 cm (6 1/2 inches) dia. woofers Approx. 3 cm (1 3/16 inches) dia. tweeters
Inputs	Two external microphone input jacks (mini-jack) sensitivity 0.4 mV (–64 dB) for low impedance microphone
Outputs	Two line output jacks (phono jack) load impedance 10 kilohms or higher rated output 0.34 V (–7 dB) at load impedance 47 kilohms Headphone jack (stereo binaural jack) for 8—32 ohm impedance headphones
Power requirements	120 V ac, 60 Hz 12 V dc, eight batteries size D (IEC designation R20)

— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES ÉCLATÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

SONY®

SERVICE MANUAL

Power consumption	14 W ac
Battery life	Approx. 20 hours of continuous recording with the built-in microphones using Eveready No. 1250 Heavy Duty batteries
Dimensions	Approx. 555 × 291 × 131 mm (w/h/d) ($21^{7}/_{8} \times 11^{1}/_{2} \times 5^{1}/_{4}$ inches) incl. projecting parts and controls not incl. handle
Weight	Approx. 5.5 kg (12 lb 12 oz) incl. batteries

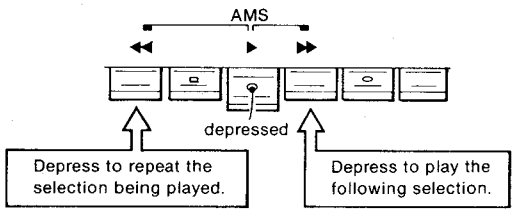
FEATURES

- High quality 2-band raio and cassette-corder.
- Graphic equalizer for enhanced playback.
- AMS (automatic music sensor) system for automatic playback from the beginning of the selection being played or the following selection.
- Record muting operation for creating blank intervals on the tape during recording, eliminating unwanted program material.
- With the Sony variable level recording monitor system, a program to be recorded may be listened to at any desired sound volume without affecting the recording.
- Automatic shut-off mechanism activates at the end of the tape in either the record or playback mode.
- Two different power sources: batteries and house current.
- 5 LEDs from the LED LEVEL METER for ease in determining input signal strength.
- FM STEREO LED indicator.
- OPR/BATT LED indicator.
- Soft eject mechanism.
- Two built-in electret condenser microphones for picking up sound with true fidelity.
- Phono jacks enable you to playback on to a stereo component system.
- Two external microphone jacks for stereo recording.

AUTOMATIC MUSIC SENSOR (AMS) SYSTEM

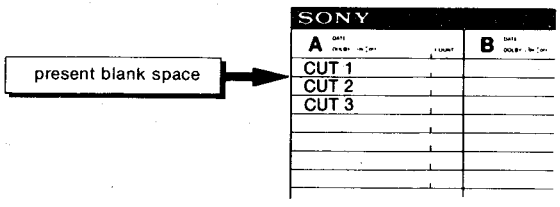
During playback, you may skip one selection by depressing the ▶▶ or ◀◀ button. The AMS searches for the blank space between selections, and playback will start automatically from the beginning of the desired selection.

During playback . . . . .



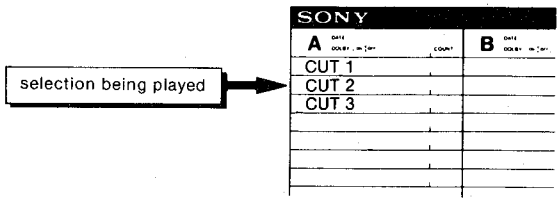
At the beginning of the selection, the ▶▶ or ◀◀ button will be released and playback will begin.

[Example 1] Operating AMS from a blank space



If you want to listen to CUT 3, depress the ▶▶ button.
If you want to listen to CUT 1, depress the ◀◀ button.

[Example 2] Operating AMS from the middle of a cut.



If you want to listen to CUT 3, depress the ▶▶ button.
If you want to listen to CUT 2 from the beginning, depress the ◀◀ button.

Notes

- If you depress the ◀◀ button about 15 seconds after a selection has started to play, playback will begin from the beginning of the previous selection.
- If you depress the ▶▶ button about 15 seconds prior to the end of a selection, playback will begin from the beginning of the selection after the immediately following one.
- The AMS may not detect some sections as blank segments in the following situations:
  —if severe noise or hum exists in the blank segments.
  —if a blank segment is less than 4 seconds long.
- The AMS may read some sections as blank segments in the following situations:
  —if any selection pauses for several seconds, such as may occur in classical music.
  —if the recorded level is very low for several seconds.

CFS-500

SUPPLEMENT

US Model

File this supplement with the service manual.

No. 1
March, 1983

◎SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

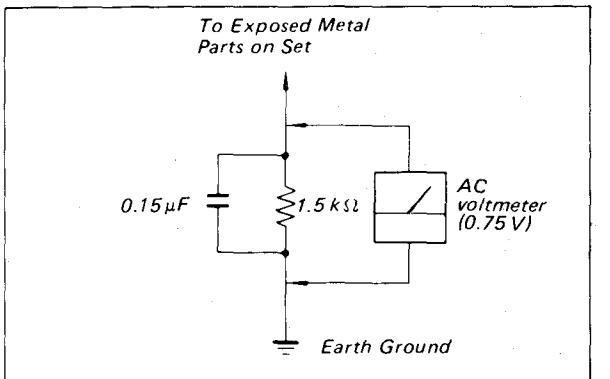


Fig. A. Using an AC voltmeter to check AC leakage.

◎ The following parts have been added as the safety-related components.

C801	⚠ 1-123-490-00	ELECT	3300 MF 16V
C317	⚠ 1-123-487-00	ELECT	470 MF 16V

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SONY®
SERVICE MANUAL

Sony Corporation
Consumer Products Group
Technical Support Dept.

9-950-925-81

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83C0640-1
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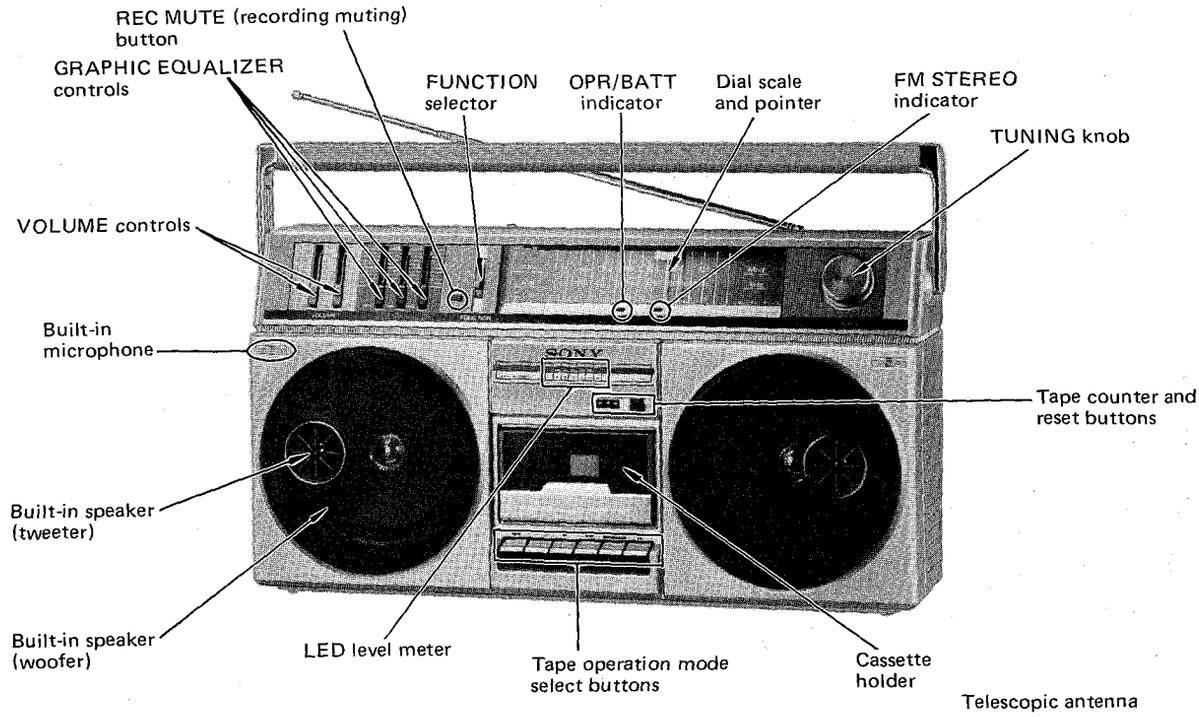
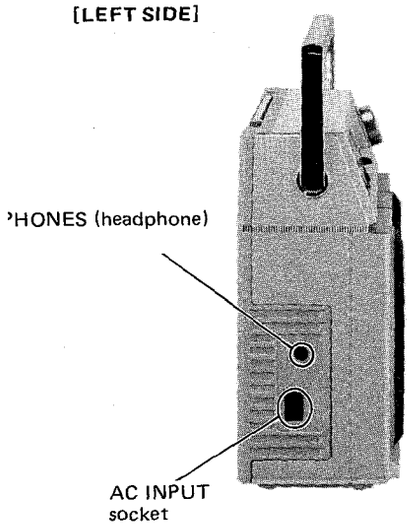
LOCATION AND FUNCTION OF CONTROLS

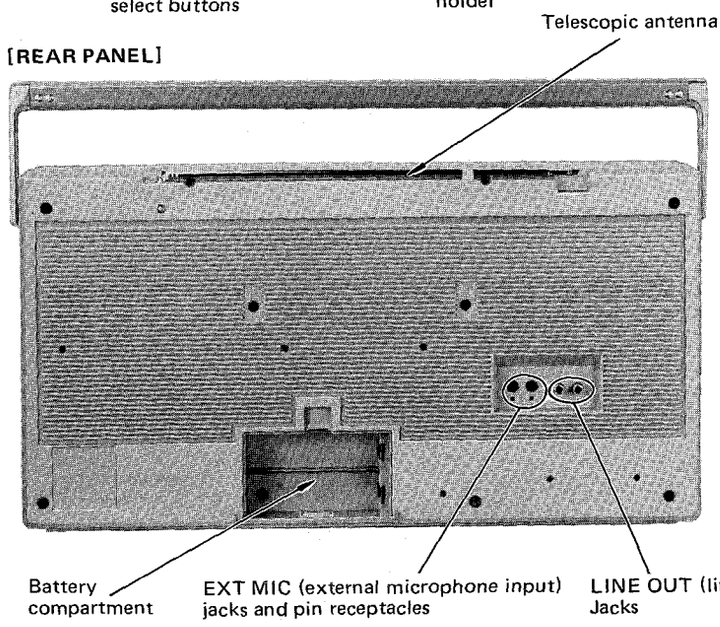
[FRONT PANEL]



[LEFT SIDE]

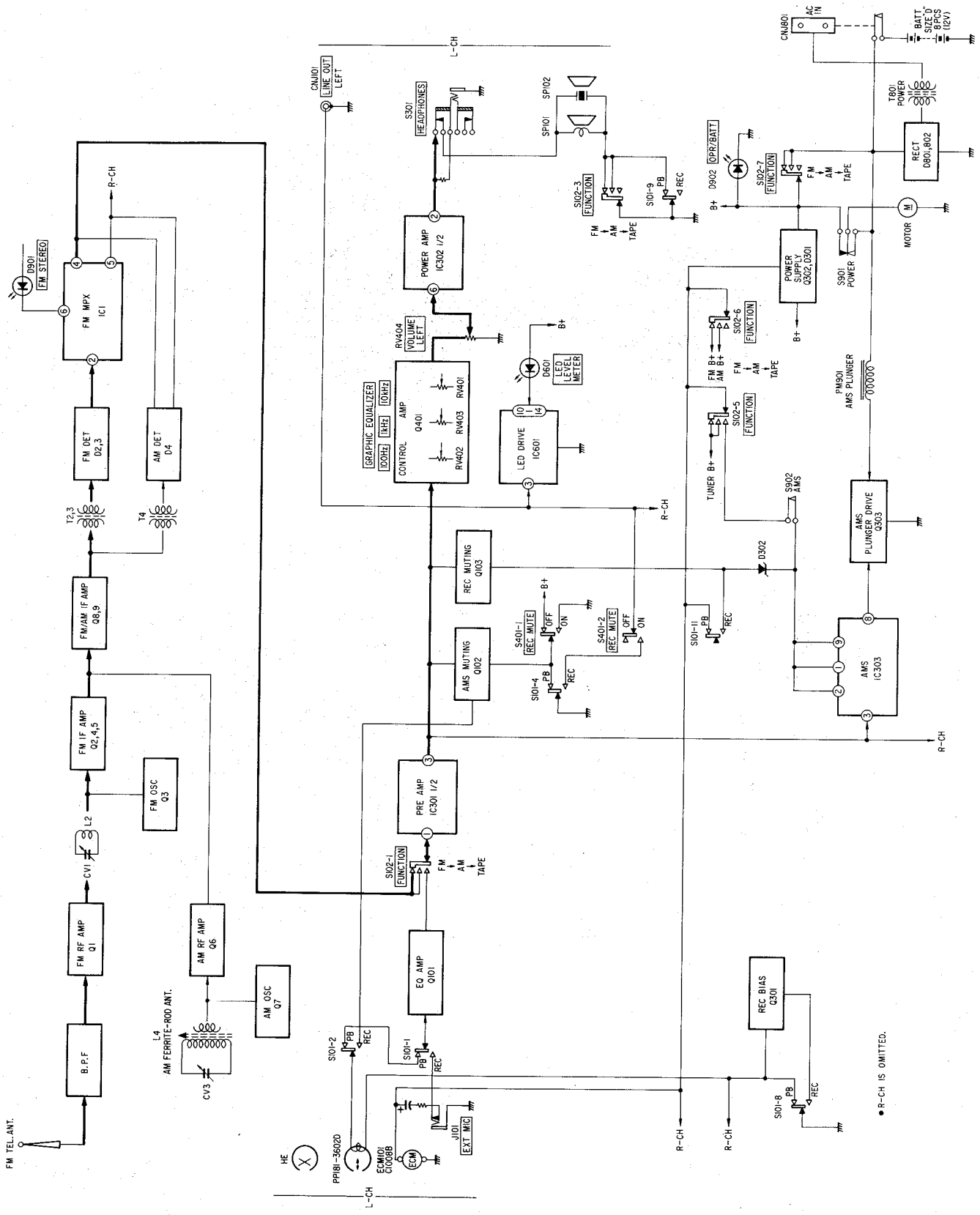


[REAR PANEL]


Telescopic antenna
Battery compartment
EXT MIC (external microphone input) jacks and pin receptacles
LINE OUT (line output) Jacks

SECTION 1
OUTLINE

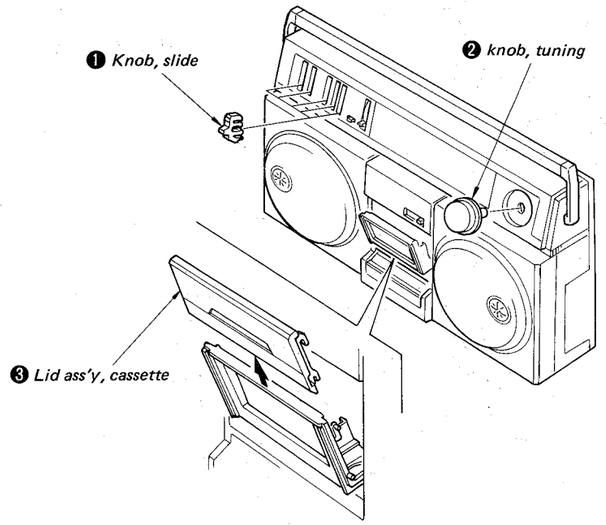
1-1. BLOCK DIAGRAM



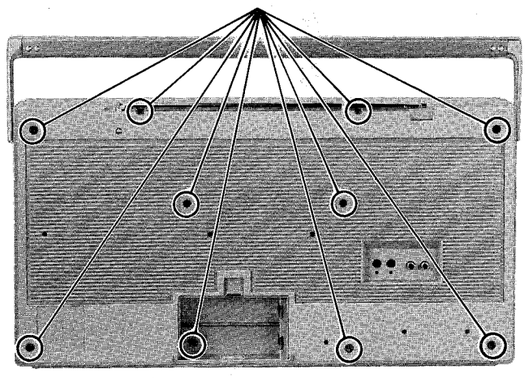
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

FRONT CABINET REMOVAL



❹ *Remove the battery cover and take out all the screws whose location is marked ⇒.*



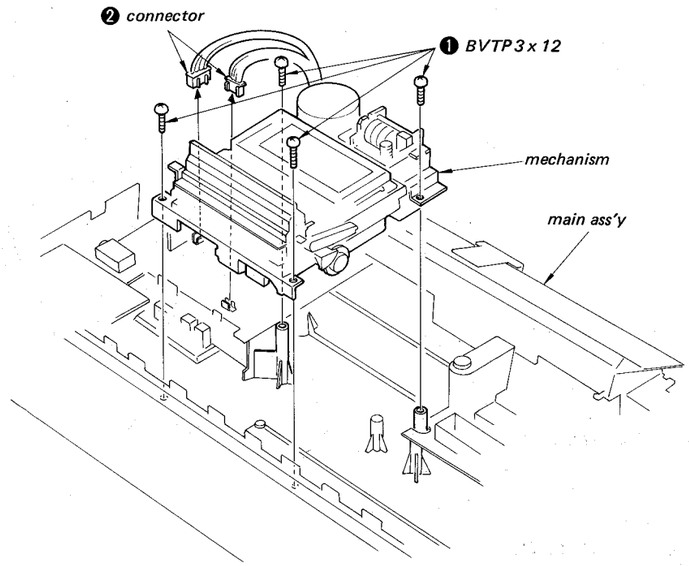
POWER BOARD REMOVAL

Take out the two screws on the board.

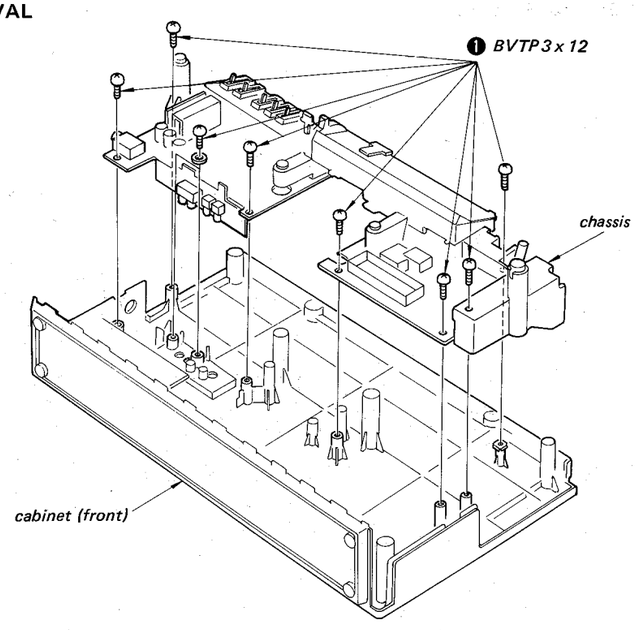
LEVEL LED BOARD REMOVAL

❶ *Take out the two screws on the board.*
❷ *Unhook two PC board clamps.*

MECHANISM REMOVAL



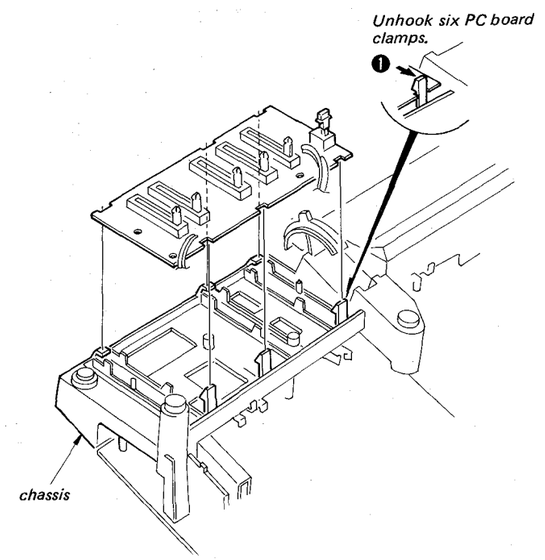
MAIN ASS'Y REMOVAL



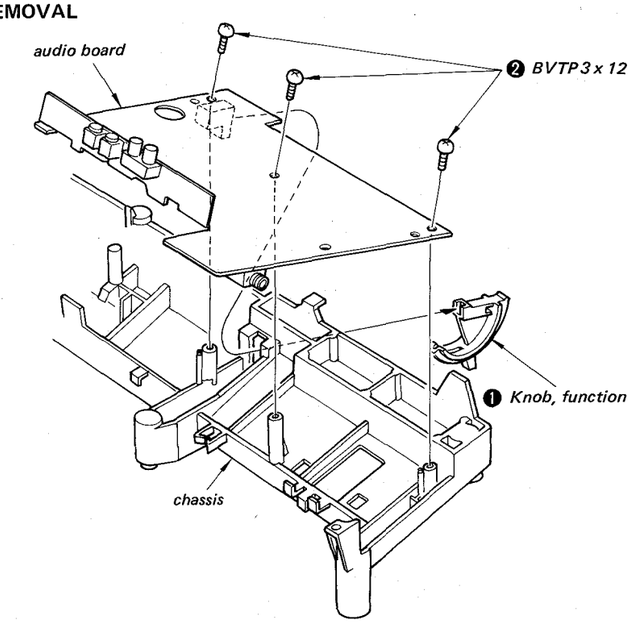
DIAL POINTER

DIAL CORD STRINGING
(See page 9.)

CONTROL BOARD REMOVAL

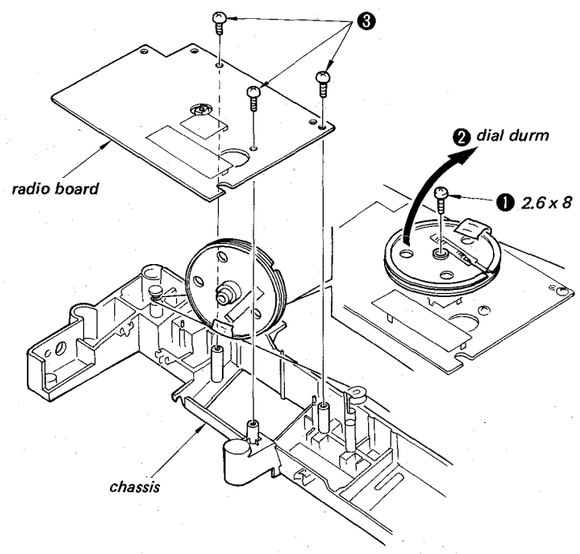


AUDIO BOARD REMOVAL



JACK BOARD REMOVAL

RADIO BOARD REMOVAL

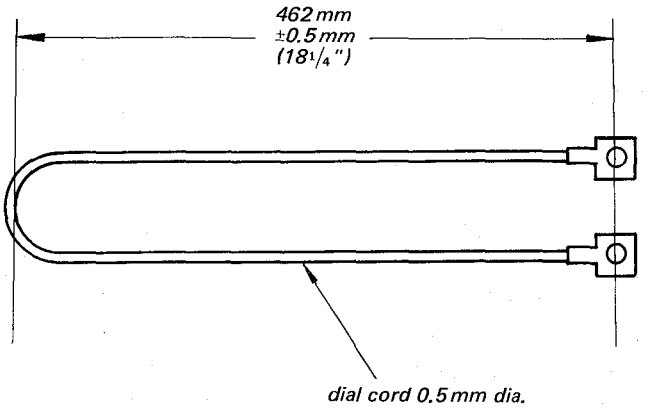


LED BOARD REMOVAL

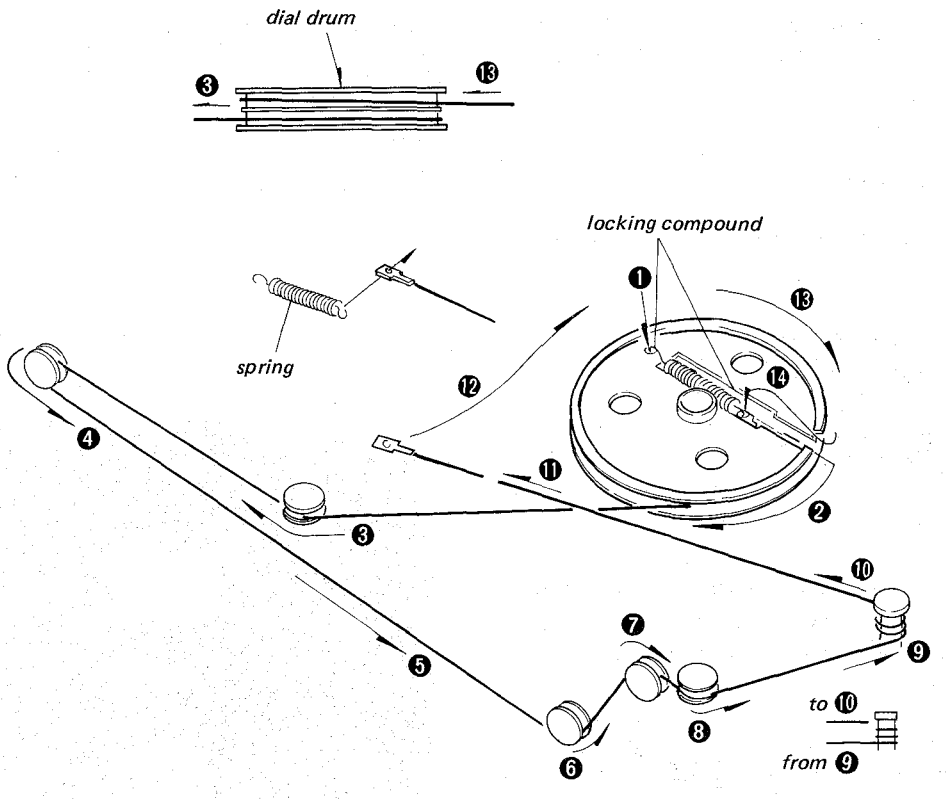
Unhook two PC board clamps.

2-2. DIAL CORD STRINGING

1. Preparation



2. Stringing



3. Dial Pointer Setting

- Receive the signal (98 MHz) from the FM RF SSG and set the dial pointer to 98 MHz on the scale.
- Apply a drop of contact cement to the dial pointer.

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

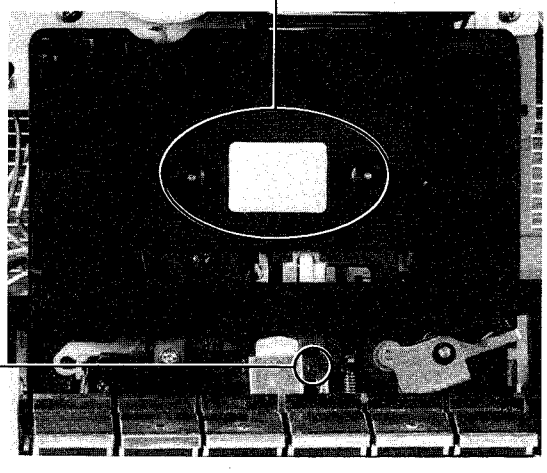
1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/play back head with a head demagnetizer (Do not bring the head demagnetizer close to the erase head.).
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

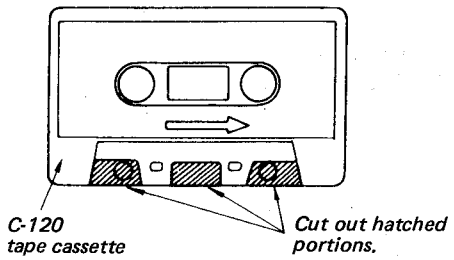
Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ102B	26 – 48 g•cm (0.36 – 0.66 oz•inch)
Fast Forward and Rewind	CQ-201A	80 – 125 g•cm (1.1 – 1.73 oz•inch)
Forward Back-Tension Torque	CQ-102B	2 – 5 g•cm (0.03 – 0.07 oz•inch)

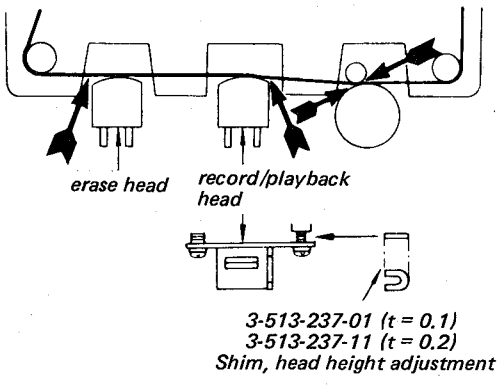


Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by arrows.



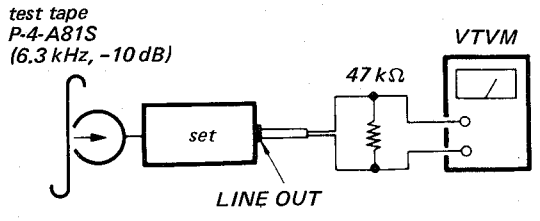
3-513-237-01 (t = 0.1)
3-513-237-11 (t = 0.2)
Shim, head height adjustment

3-2. ELECTRICAL ADJUSTMENTS

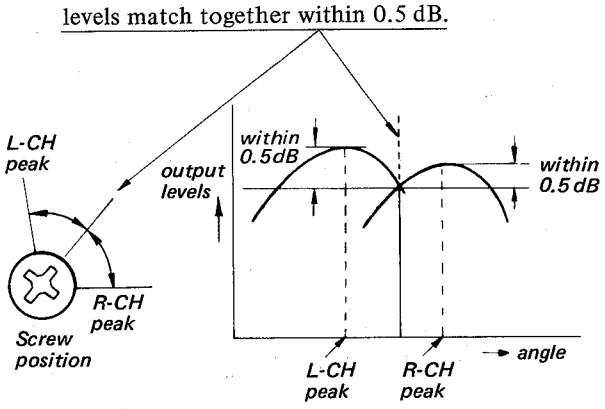
Record/playback Head Azimuth Adjustment

Procedure:

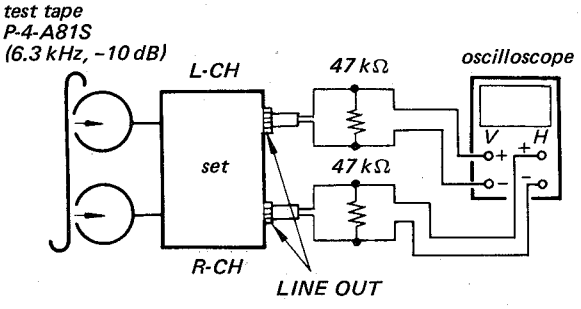
1. Mode: playback

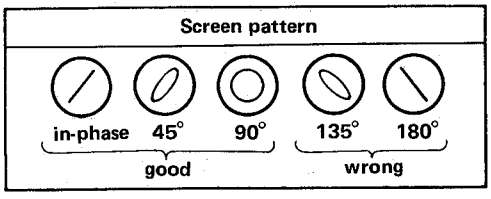


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.

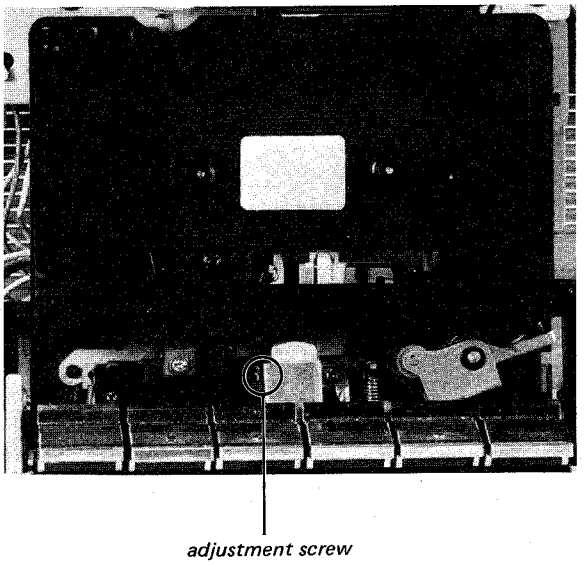


3. Phase Check
   Mode: playback





Adjustment Location:



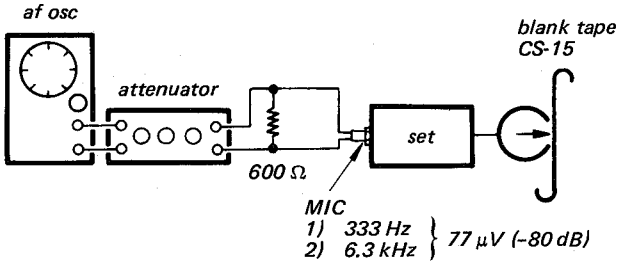
Record Bias Adjustment

Setting:

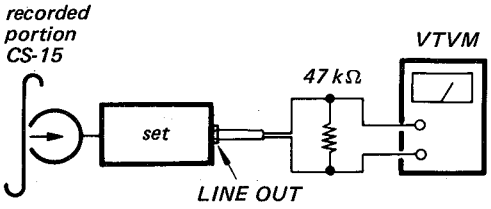
GRAPHIC EQUALIZER: ±0
FUNCTION switch: TAPE

Procedure:

1. Mode: record



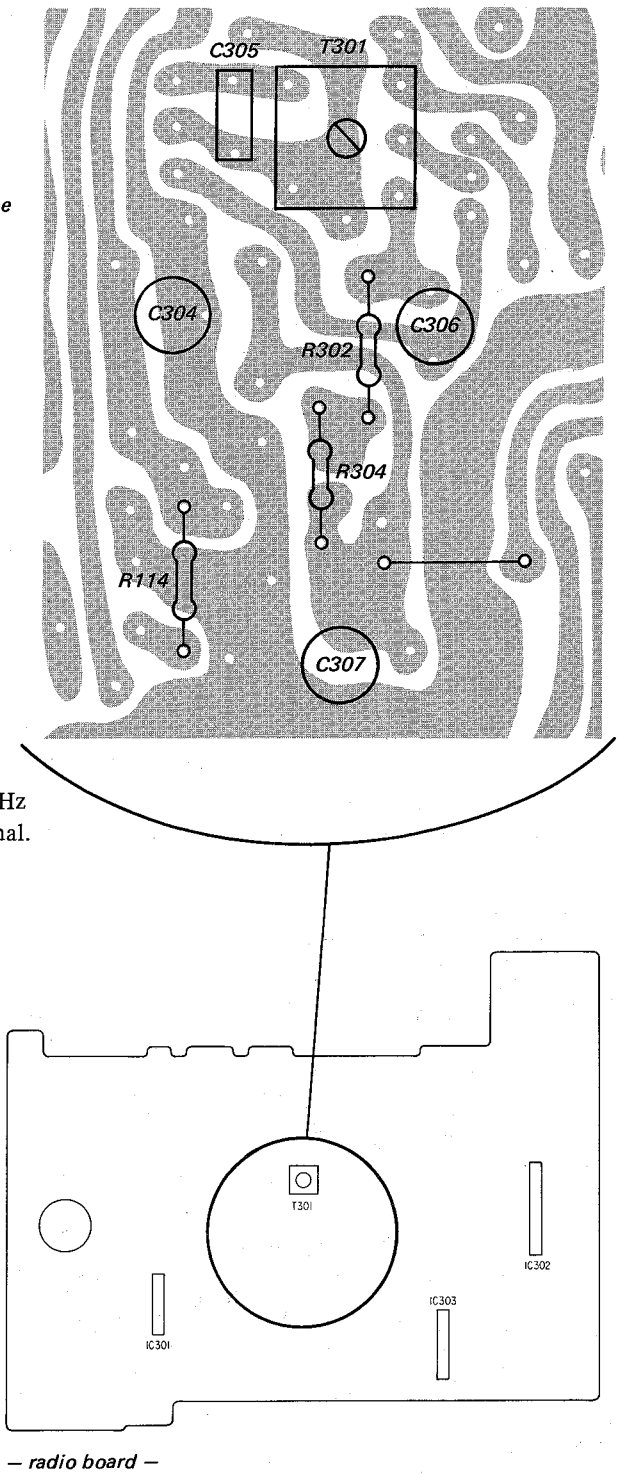
2. Mode: playback



Make sure that the LINE OUT level of 6.3 kHz signal is 0^{+2}_{-4} dB relative to that of 333 Hz signal. If not, short R304.

Adjustment Location:

– radio board –

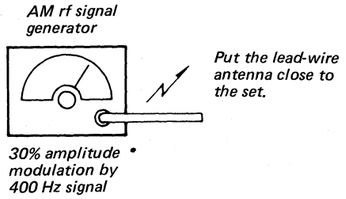


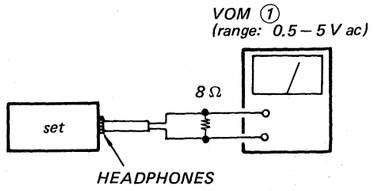
– radio board –

CFS-500

3-2. RADIO SECTION

AM

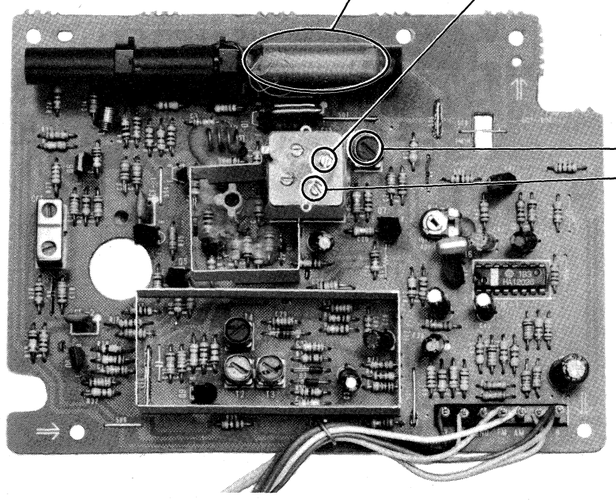




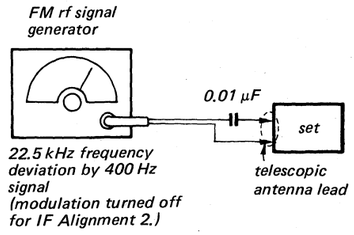
• Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

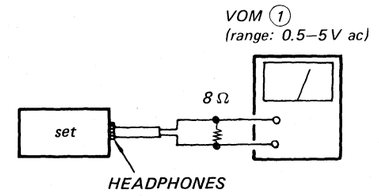
AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
620 kHz	1,400 kHz
L4	CT3

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
T1	520 kHz
CT4	1,680 kHz



FM

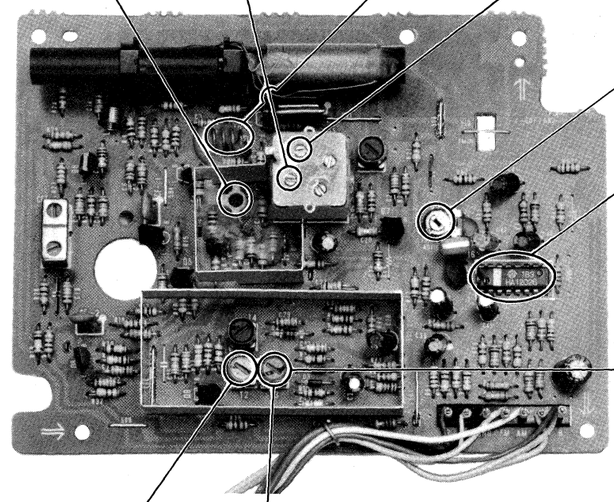

FM rf signal generator
0.01 μF
set
22.5 kHz frequency deviation by 400 Hz signal (modulation turned off for IF Alignment 2.)
telescopic antenna lead



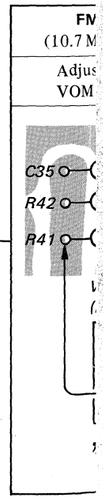
• Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
87.1 MHz	108.5 MHz
L3	CT2

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
87.1 MHz	108.5 MHz
L2	CT1



T2	T3
Adjust for a maximum reading on VOM ①.	
FM IF ALIGNMENT 1 (10.7 MHz with modulation)	



5 V ac)

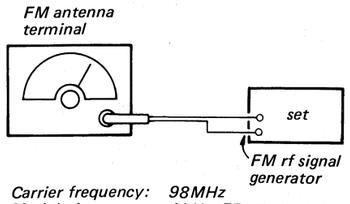
RV1

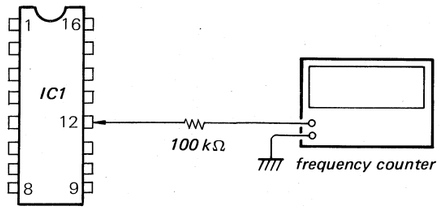
test point

19 kHz Adjustment

A) Regular Method

Procedure:



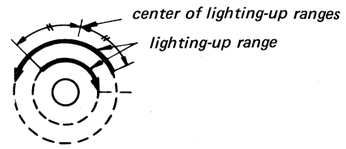


1. Tune the set to 92 MHz.
2. Adjust RV1 for 19 kHz ± 0.1 kHz on the counter.

B) Simple Method

Procedure:

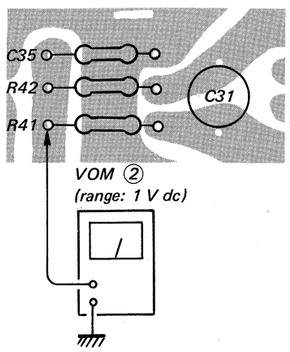
1. Tune the set to the FM stereo broadcasting signal.
2. Turn RV1 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RV1 at the center of the lighting-up range of both turns as shown below.



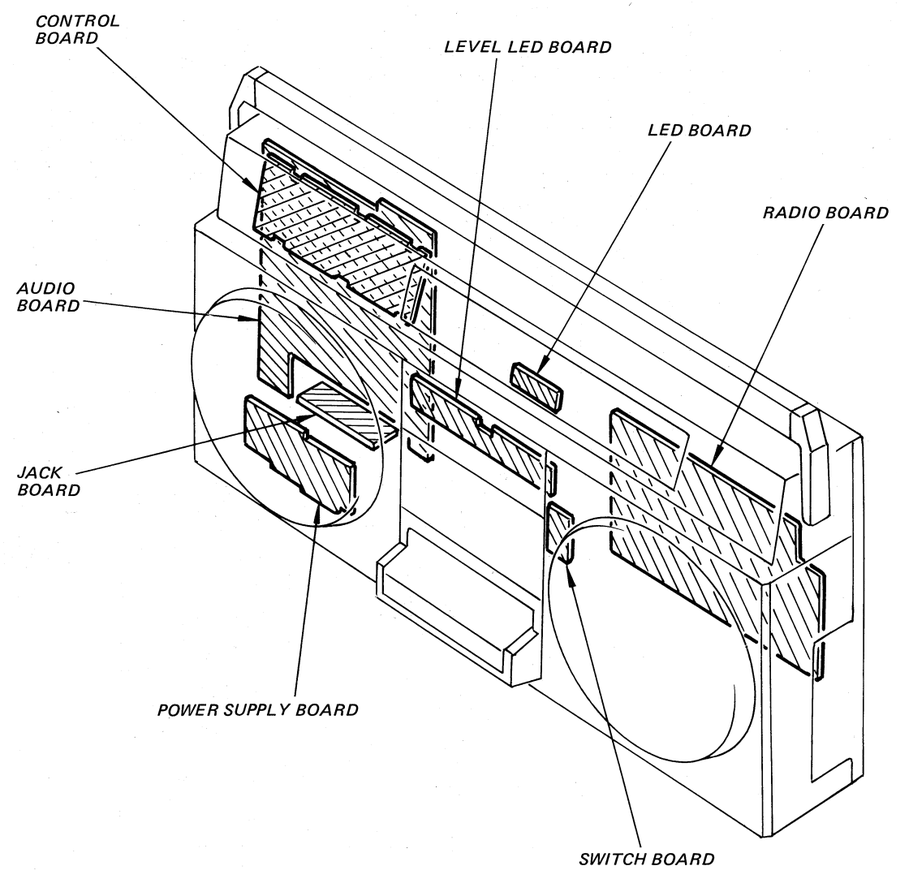
FM IF ALIGNMENT 2

(10.7 MHz with no modulation)

Adjust for 0 V reading on VOM ②.

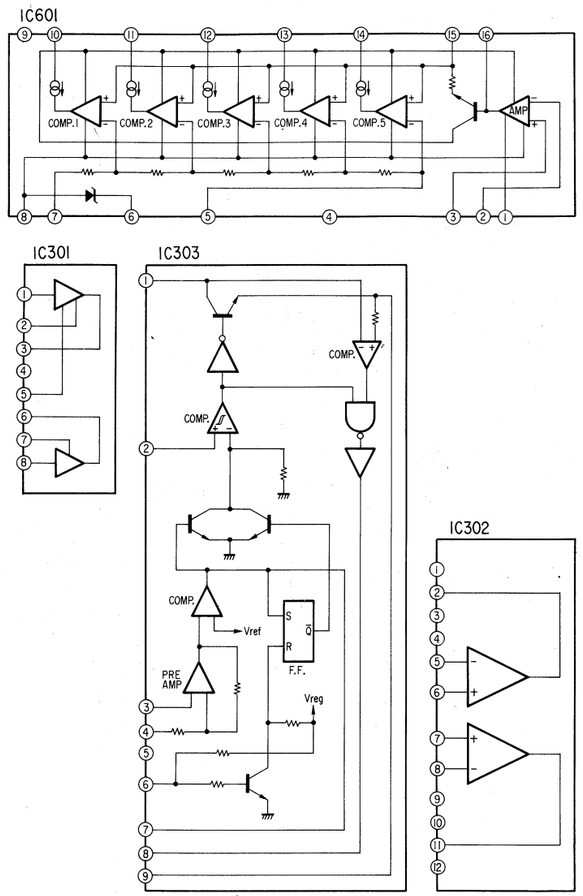


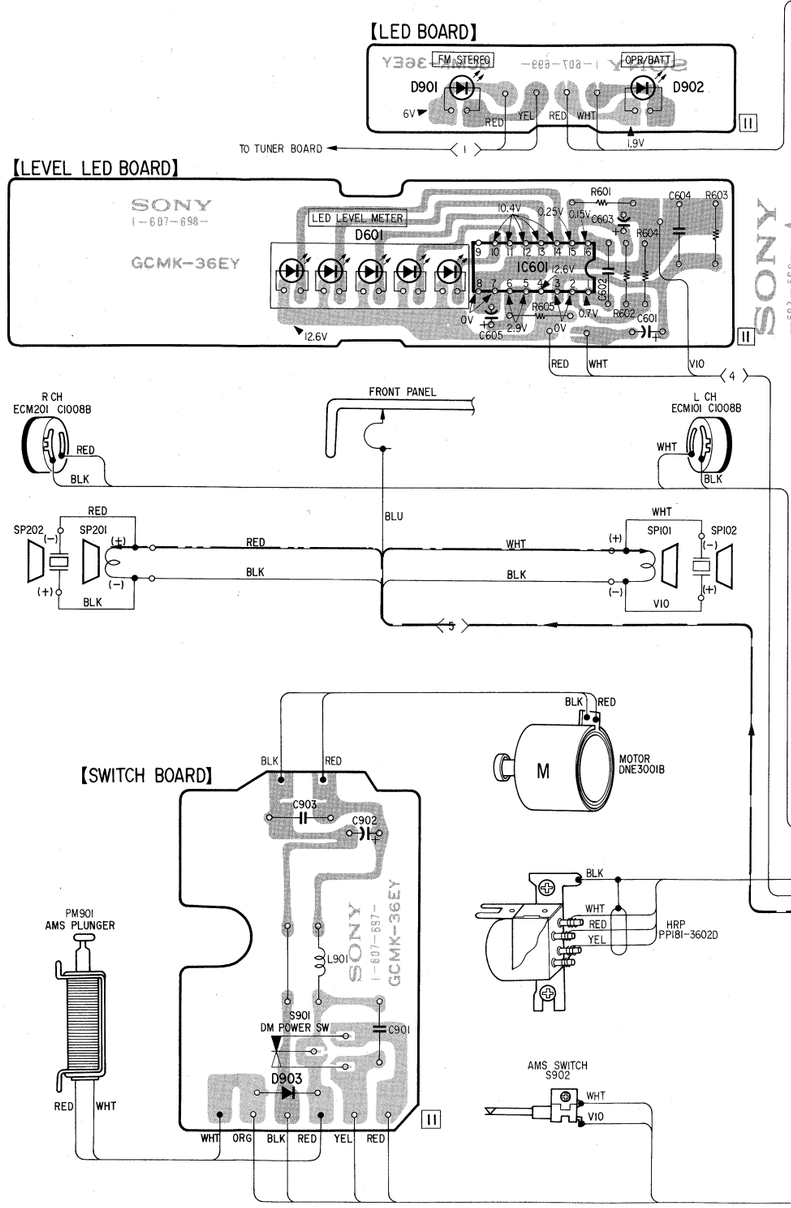
CIRCUIT BOARDS LOCATION

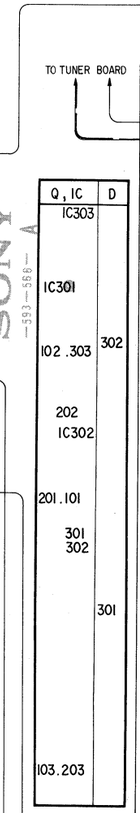


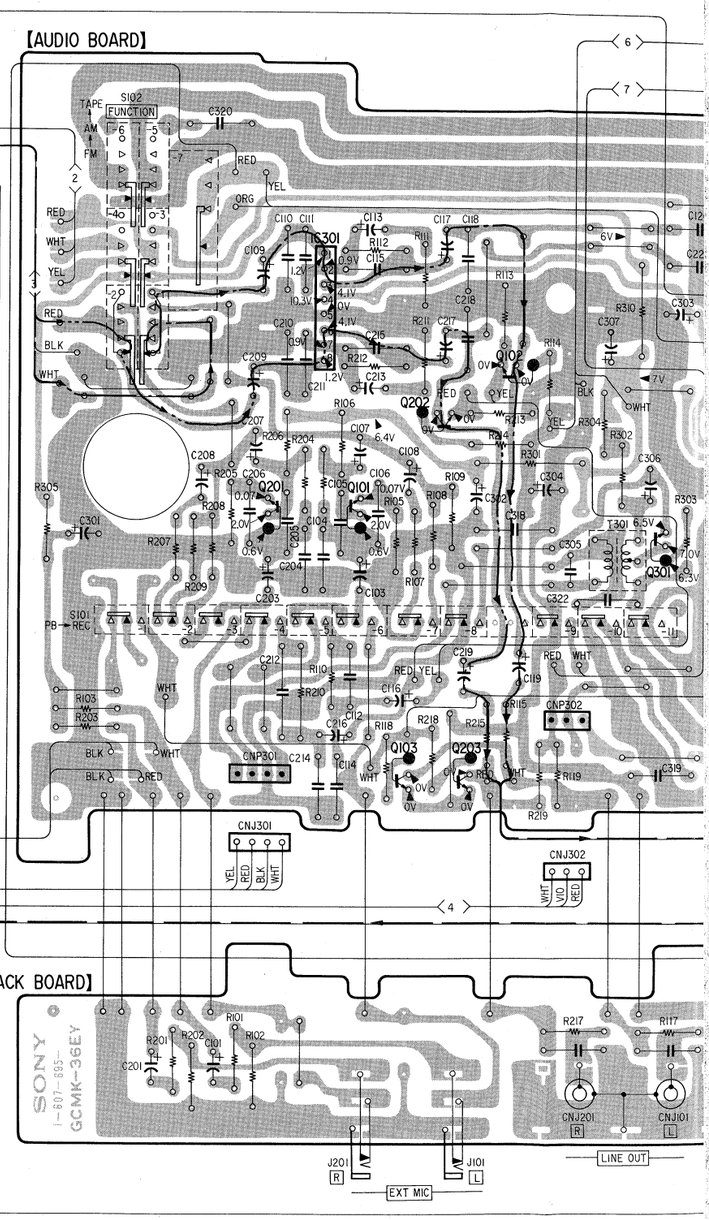
4-1. MOUNTING DIAGRAM — *Conductor Side* —

• See page 16 for circuit boards location.

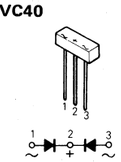
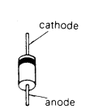
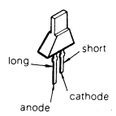
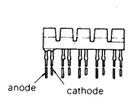
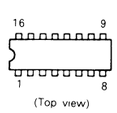
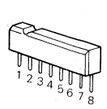
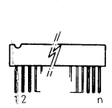
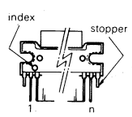






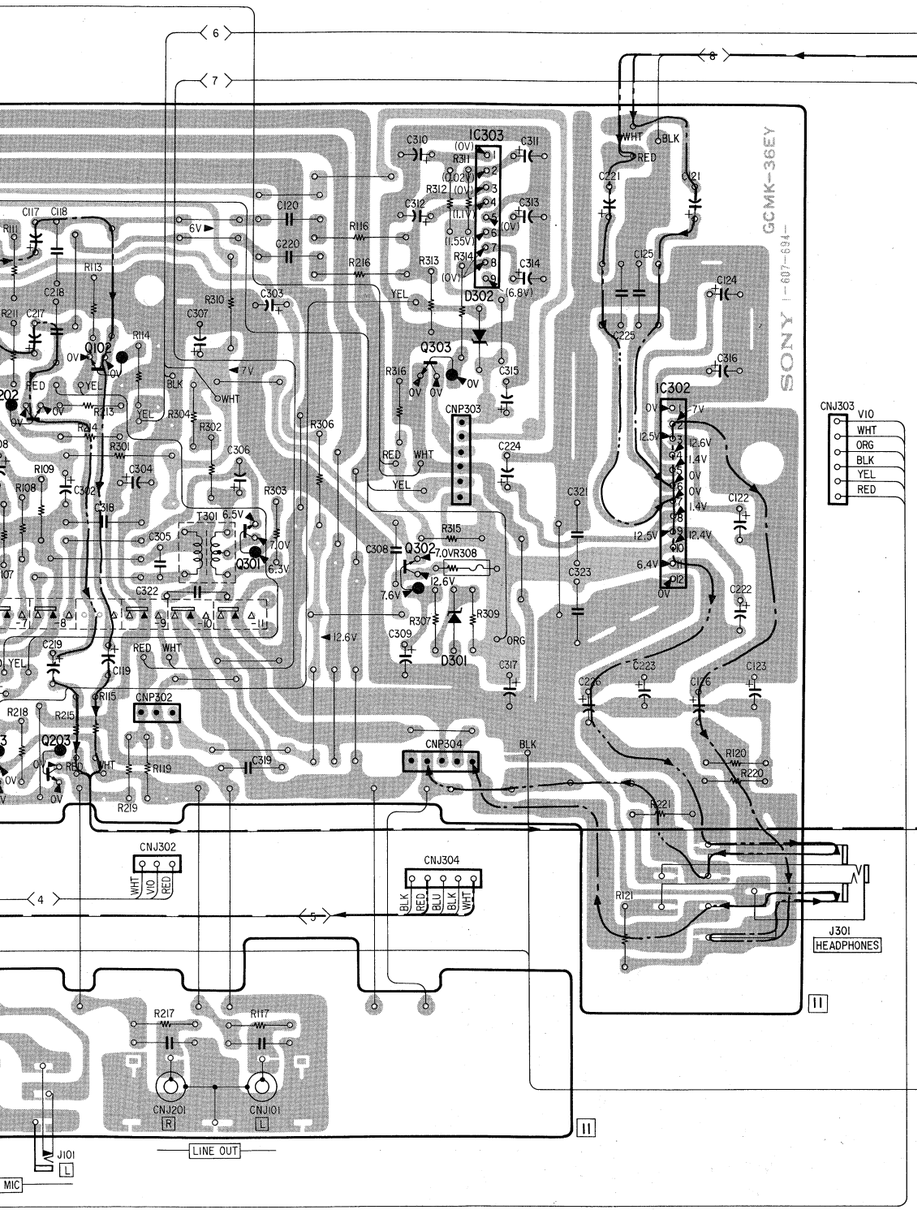


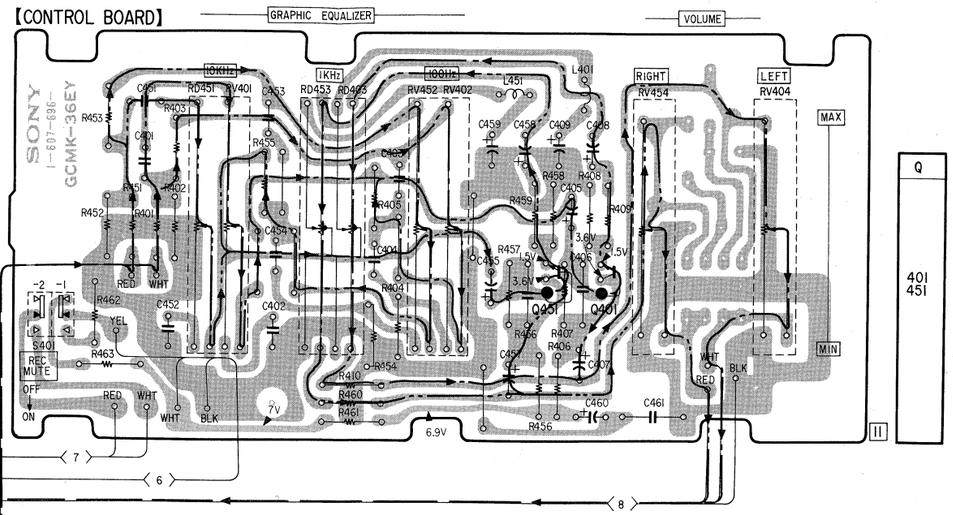
SEMICONDUCTOR LEAD LAYOUTS

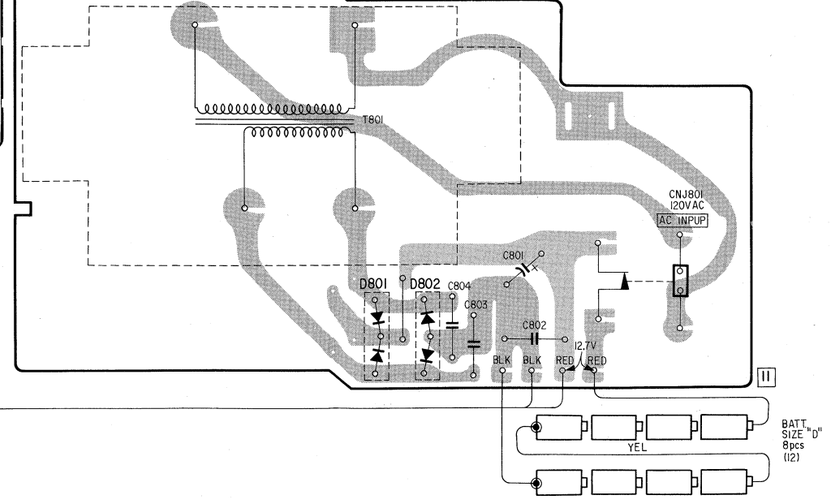
S3VC40	1S1555 1S2687S-1 1T261 S3V40R RD3.0E RD7.5E	SLP141B	LT3001P	LB1405	BA328	BA338	μPC1277H	2SC1362 2SC1363 2SC1363BLU	2SD773
									

H I J K L M N O P

1 2 3 4 5

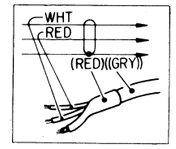






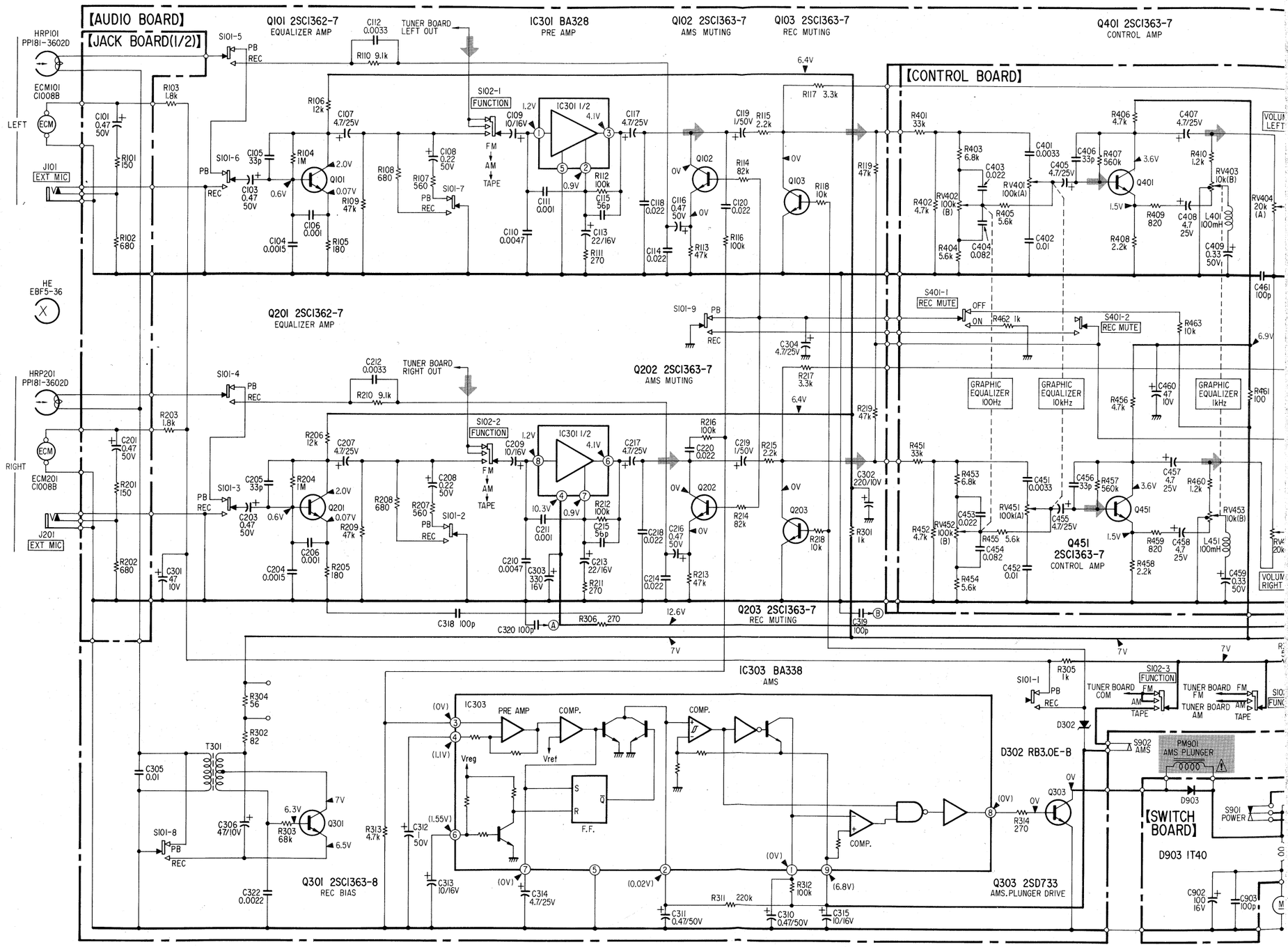
Note:

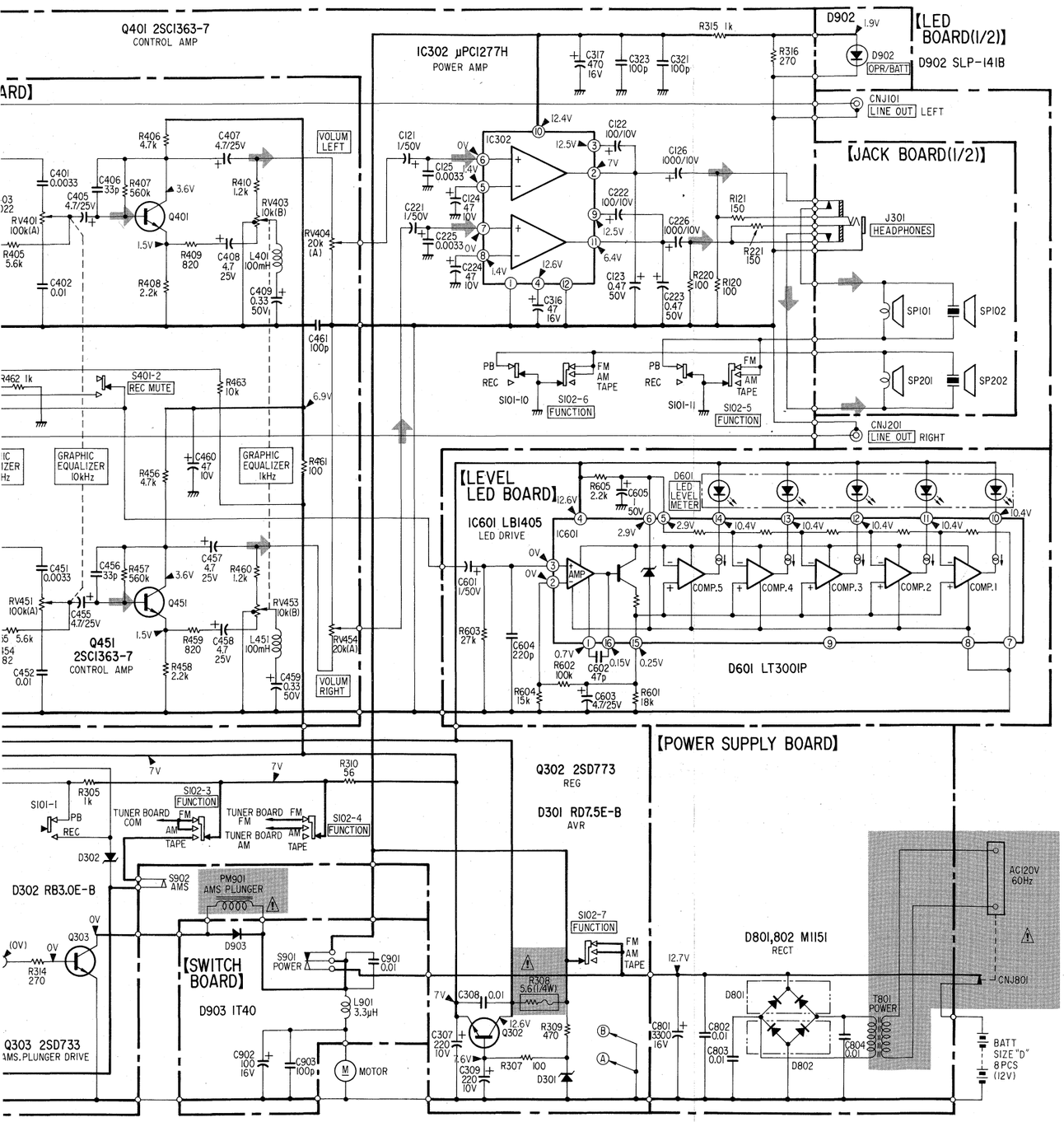
- Color code of sleeving over the end of the jacket.



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ▒ : B + pattern
- ▬▶▬ : signal path
- ▬▪▶ : L-CH signal path
- ▶▪▬ : R-CH signal path

4-2. SCHEMATIC DIAGRAM — *Audio Section* —





Note:

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- △ : internal component.
- ※ : selected to yield optimum performance.
- : panel designation.
- : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions.
  no mark : FM
  < > : AM
  ( ) : TAPE–PB
- Voltage variations may be noted due to normal production tolerances.
- : signal path
- Switches

Ref. No.	Switch	Position
S101	REC/PB	PB
S102	FUNCTION	FM
S401	REC MUTE	OFF
S901	POWER	OFF
S902	AMS	OFF

Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

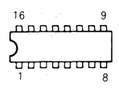
4-3. MOUNTING DIAGRAM — *Audio Amp Section* —

• See page 16 for circuit boards location.

SEMICONDUCTOR LEAD LAYOUTS

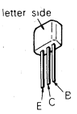
SLP141B

HA12026



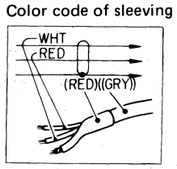
2SC710

2SC2839
2SC668-SP

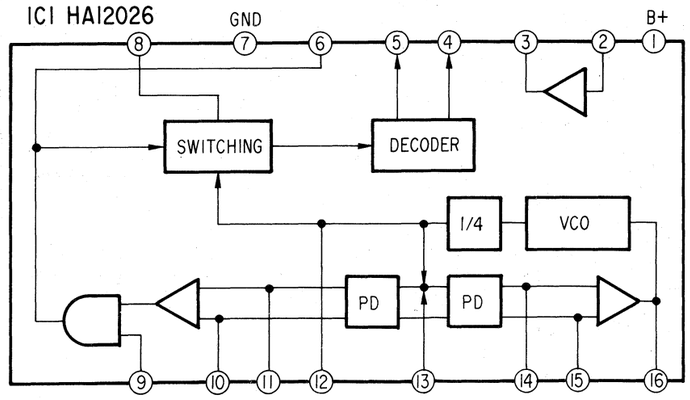


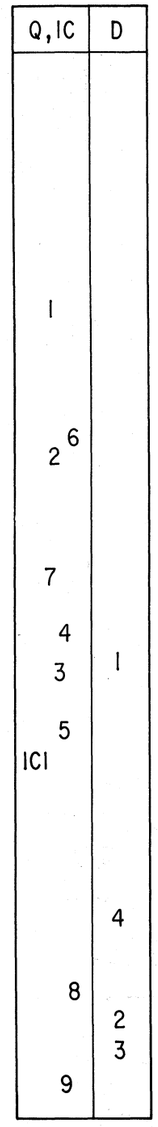
Note:

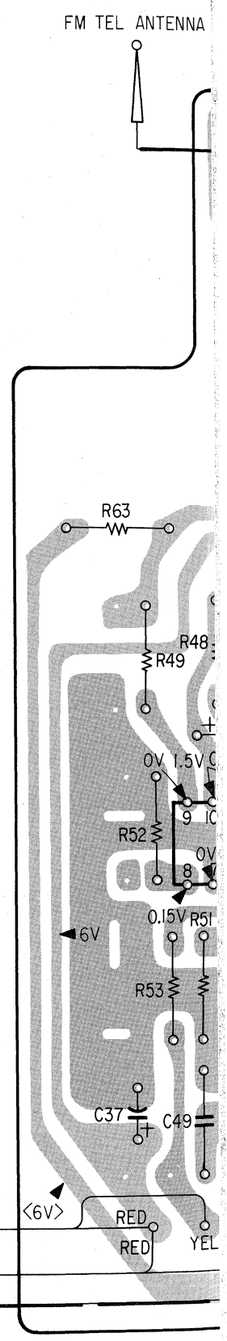
- Color code of sleeving over the end of the jacket.



- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ▒ : B + pattern
- ▬▶▬ : signal path
- ▬·▶ : L-CH signal path
- ▬··▶ : R-CH signal path





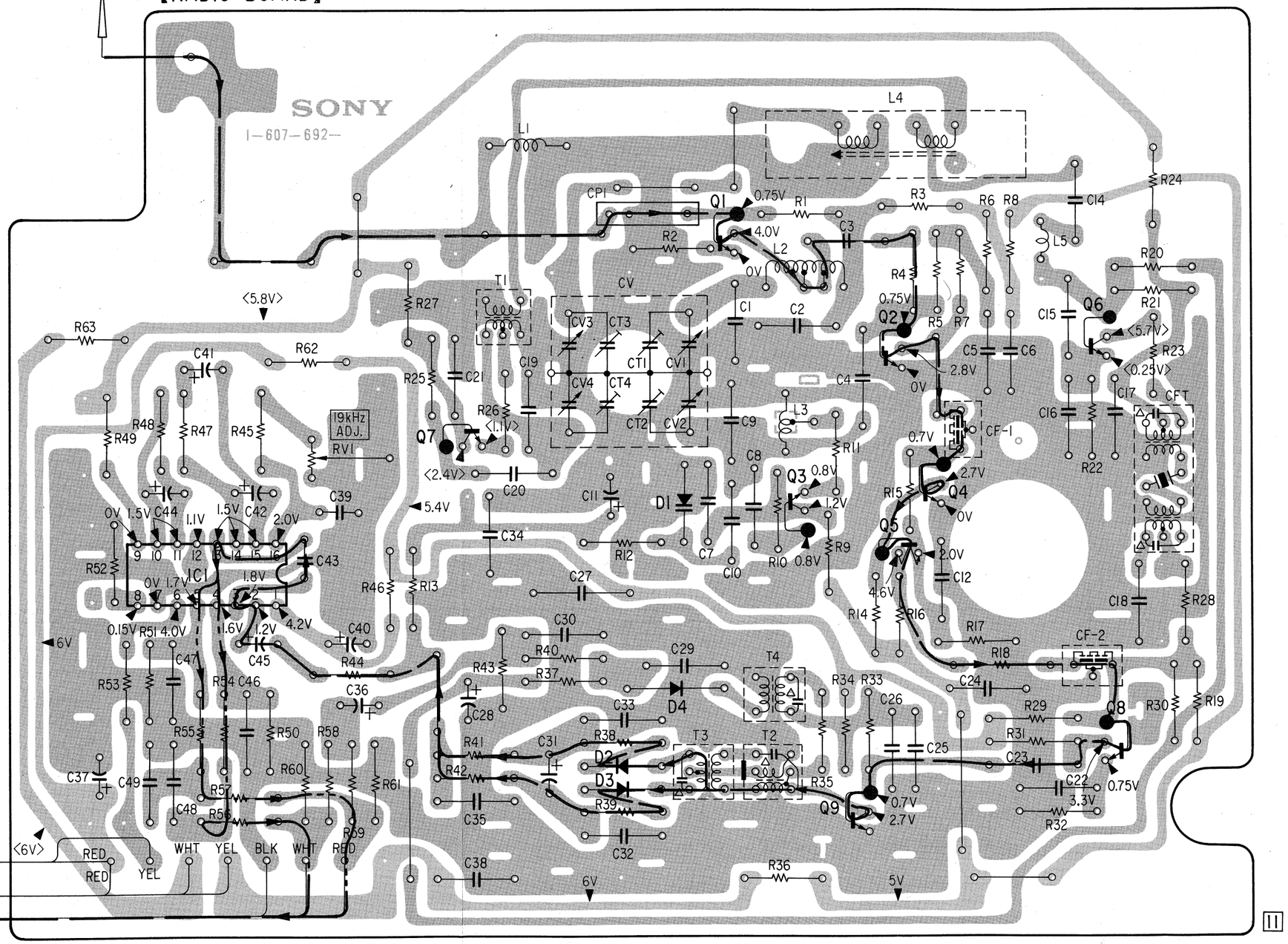


F G H I J K L

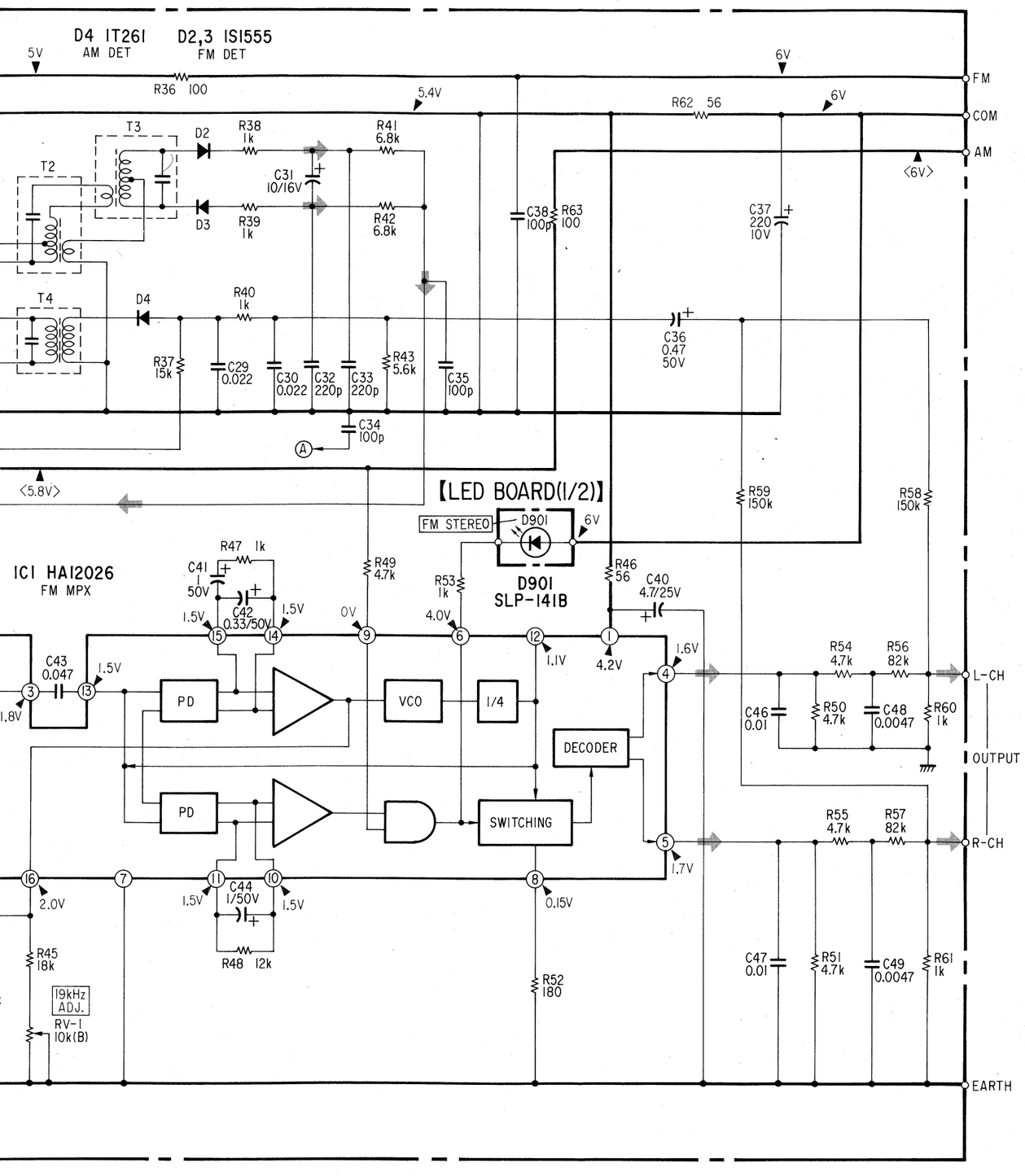
1 2 3 4 5

FM TEL ANTENNA

【RADIO BOARD】



4-4. SCHEMATIC DIAGRAM — *Radio Section* —



Note:

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ⊣[W]⊢ : nonflammable resistor.
- △ : internal component.
- ※ : selected to yield optimum performance.
- ▭ : panel designation.
- ——— : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions.
  no mark : FM
  < > : AM
- Voltage variations may be noted due to normal production tolerances.
- ➡ : signal path
- Switches

Ref. No.	Switch	Position
S101	REC/PB	PB
S102	FUNCTION	FM
S401	REC MUTE	OFF
S901	POWER	OFF
S902	AMS	OFF

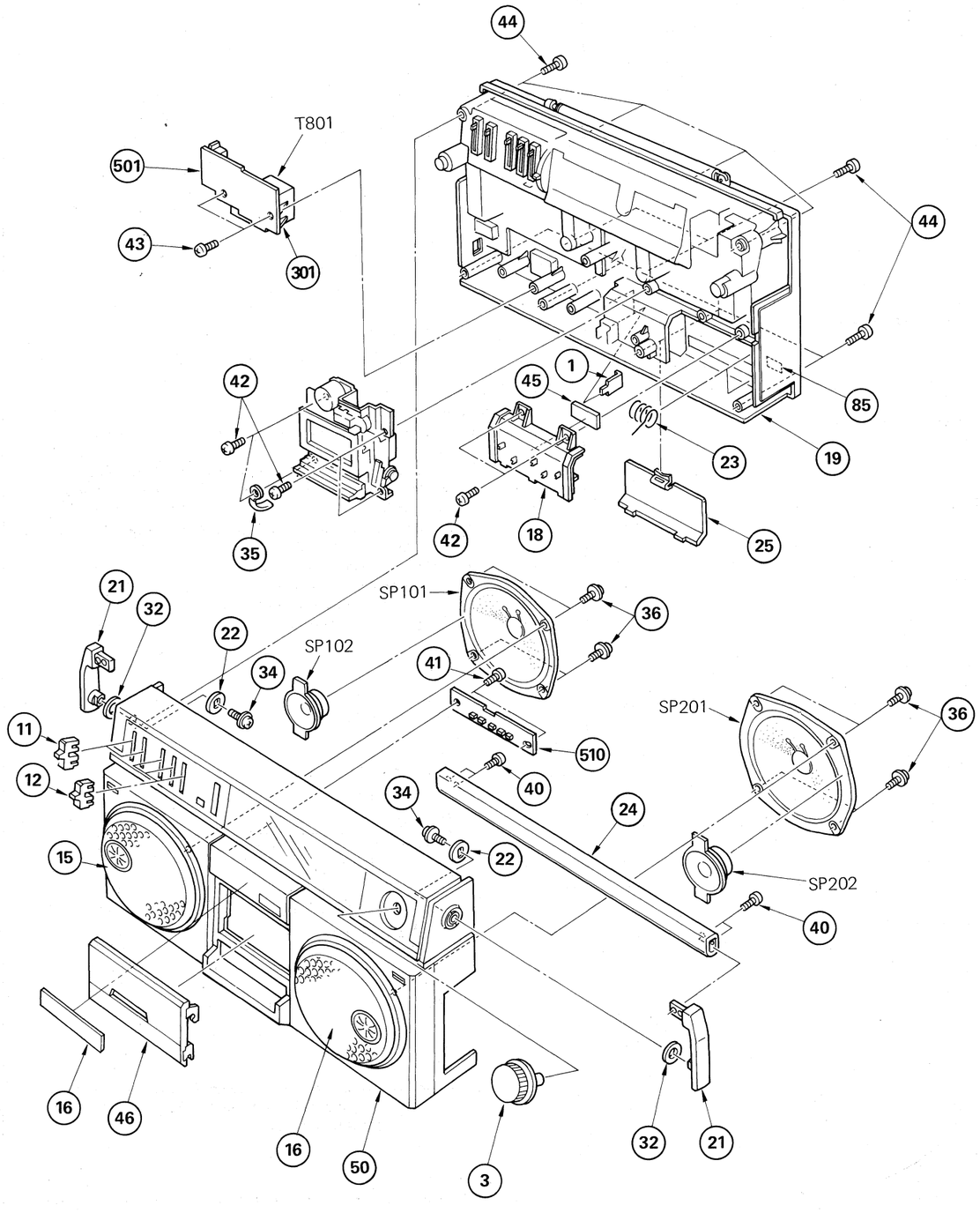
Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

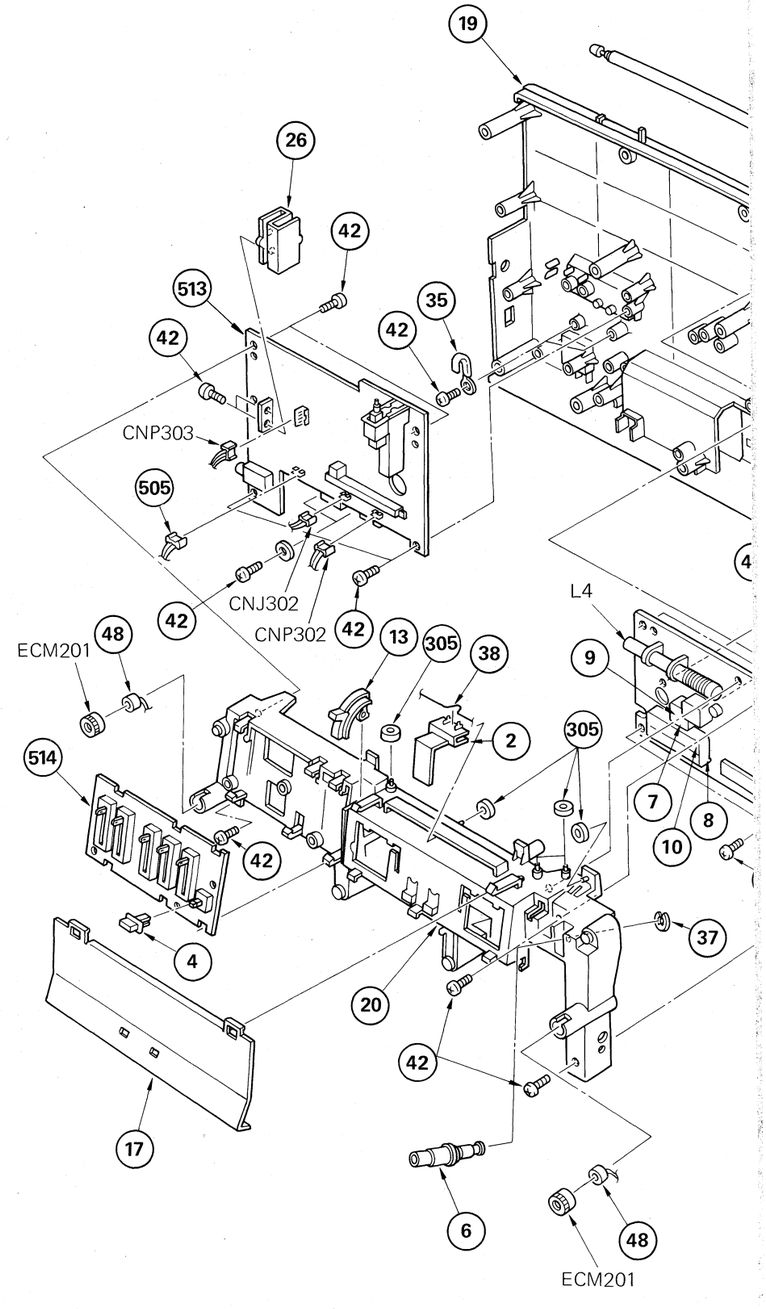
Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 5
EXPLODED VIEWS AND PARTS LIST

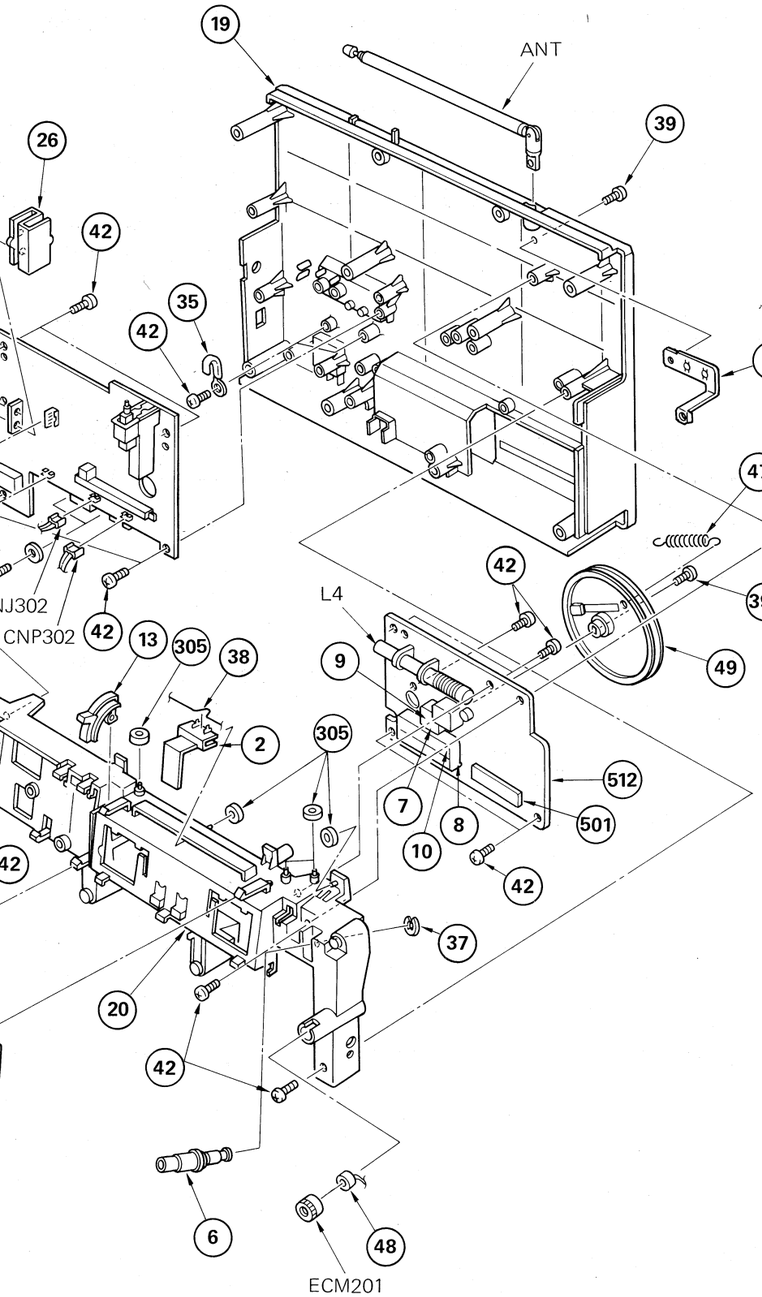
5-1.



5-2.



B C D



A B C D

5-3.

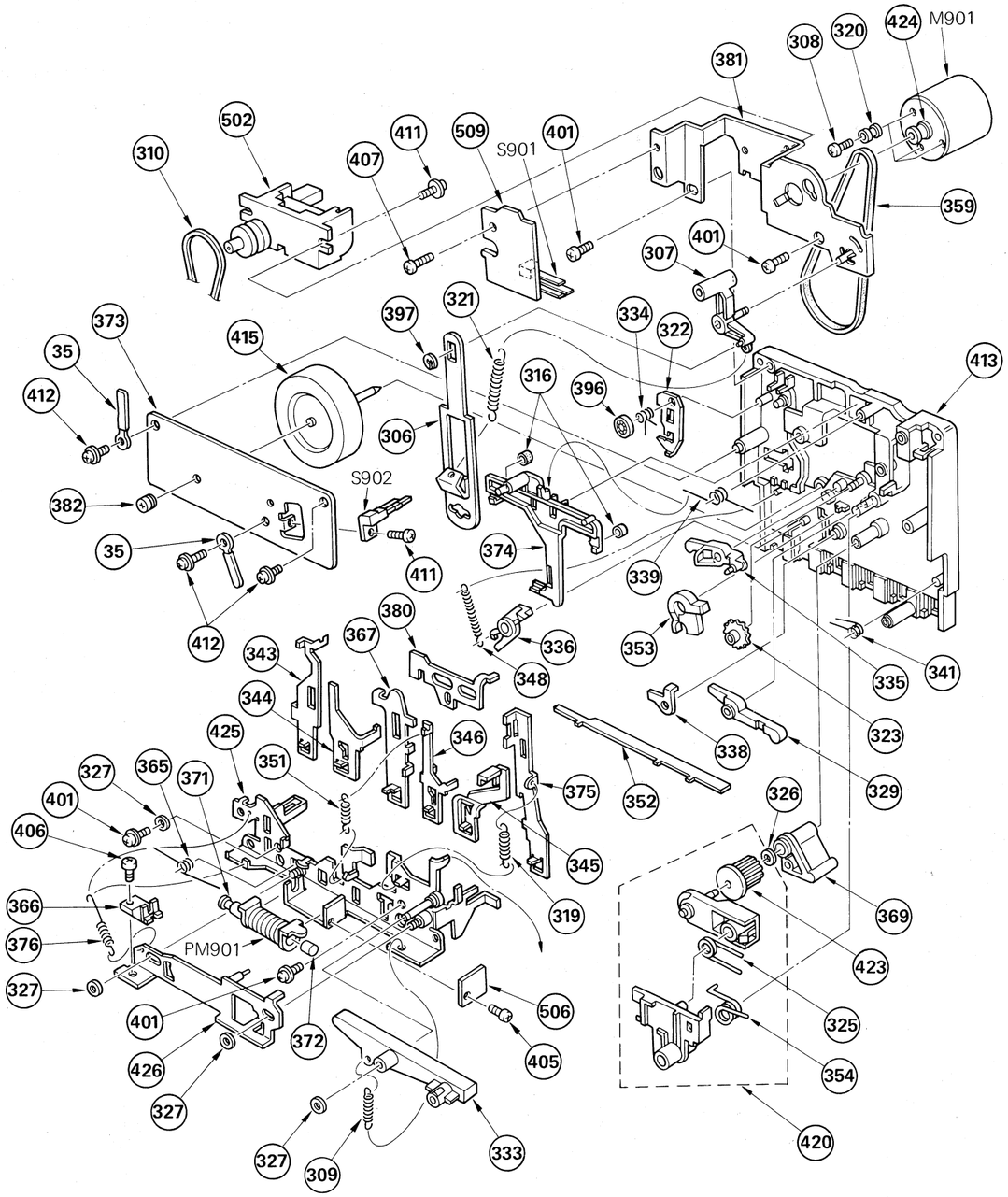
1

2

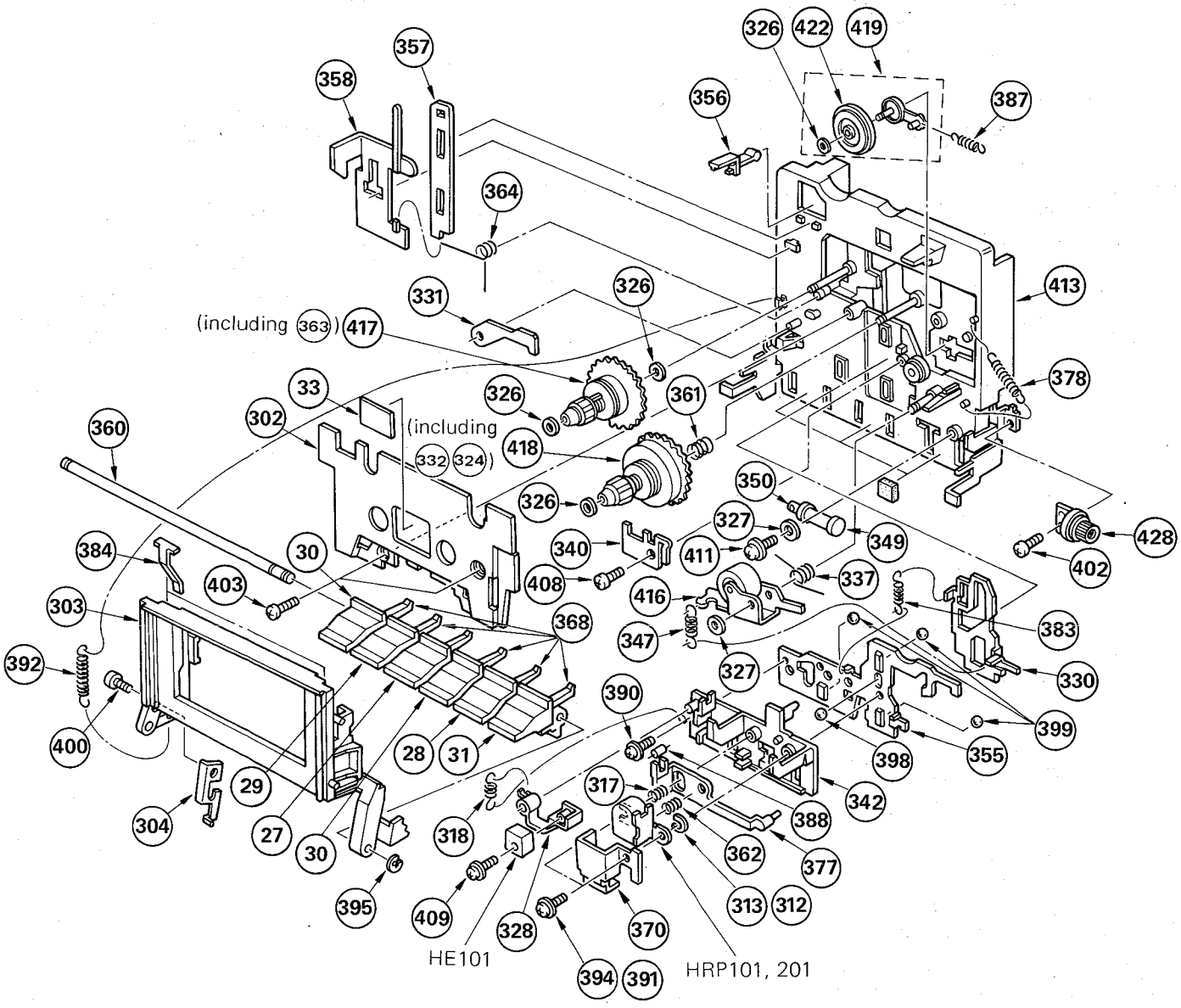
3

4

5



5-4.



GENERAL SECTION

No.	Part No.	Description
1	3-302-616-00	TERMINAL BOARD, BATTERY
2	3-306-701-00	POINTER
3	3-306-702-00	KNOB, TUNING
4	3-306-703-00	KNOB, RECORDING MUTE
5 ♦	3-306-704-00	PLATE, CONTACT, ANTENNA
6 ♦	3-306-705-00	SHAFT, TUNING
7 ♦	3-306-707-00	CASE (A), SHIELD
8 ♦	3-306-708-00	CASE (B), SHIELD
9 ♦	3-306-709-00	PLATE (A), SHIELD
10 ♦	3-306-710-00	PLATE (B), SHIELD
11	3-306-713-01	KNOB, SLIDE
12	3-306-713-11	KNOB, SLIDE
13	3-306-714-00	KNOB, FUNCTION
14	3-306-715-00	NET (RIGHT), SPK
15	3-306-716-00	NET (LEFT), SPK
16	3-306-717-01	PLATE, ORNAMENTAL, LED
17	3-306-718-01	PLATE, SCALE, DIAL
18 ♦	3-306-719-00	COVER, BATTERY
19	3-306-724-01	CABINET (REAR)
20	3-306-725-00	CHASSIS
21	3-548-910-00	PLATE, SIDE, HANDLE
22	3-566-528-11	WASHER, FRICTION
23	3-571-436-00	SPRING
24	3-571-449-11	HANDLE
25	3-571-464-21	LID, BATTERY CASE
26 ♦	3-578-822-00	HEAT SINK
27	3-578-828-00	ORNAMENT, FWD BUTTON
28	3-578-829-00	ORNAMENT, REC BUTTON
29	3-578-830-00	ORNAMENT, STOP BUTTON
30	3-578-831-01	ORNAMENT, FRP BUTTON
31	3-578-831-11	ORNAMENT, FRP BUTTON
32	3-701-445-11	WASHER, 7
33	3-701-769-00	PLATE, ORNAMENTAL
34	3-701-809-31	SCREW, TERMINAL (M3X8)
35 ♦	3-701-822-00	HOLDER, WIRE
36	3-703-137-00	SCREW, TAPPING
37	7-624-111-04	STOP RING 7.0, TYPE -E
38	7-633-121-41	GLASS, TETORON DIAL STRING 0.5
39	7-682-548-04	SCREW +B 3X8
40	7-682-549-04	SCREW +B 3X10
41	7-685-647-11	SCREW +BVTP 3X10 TYPE2 N-S
42	7-685-648-11	SCREW +BVTP 3X12 TYPE2 N-S
43	7-685-649-11	SCREW +BVTP 3X14 TYPE2 N-S
44	7-685-650-19	SCREW +BVTP 3X16 TYPE2 N-S
45	9-911-815-03	CUSHION (A)

GENERAL SECTION

No.	Part No.	Description
46	X-3306-701-1	LID ASSY, CASSETTE
47	3-536-819-00	SPRING, TENSION
48	3-572-056-00	CUSHION, MICROPHONE
49	3-573-012-00	DRUM, DIAL
50	X-3306-701-1	CABINET (FRONT) ASSY

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
81	3-566-582-01	BAG, PROTECTION
82	3-306-727-01	INDIVIDUAL CARTON
83	3-306-728-01	CUSHION (LEFT)
84	3-306-729-01	CUSHION (RIGHT)
85	3-701-999-00	LABEL, SERIAL NUMBER
86	3-773-036-20	(US).....MANUAL INSTRUCTION
87	3-773-036-31	(Canadian)...MANUAL INSTRUCTION
88	3-793-828-11	QUESTIONNAIRE

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
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MECHANISM SECTION

No.	Part No.	Description
301 ♣	3-302-609-11	HOLDER, TRANSFORMER
302 ♣	3-302-627-00	COVER, MD
303	3-302-633-00	HOLDER, CASSETTE
304 ♣	3-302-642-00	BRACKET, CASSETTE HOLDER
305	3-304-109-00	PULLEY
306 ♣	3-306-706-00	LEVER (B), RECORDING
307	3-306-720-00	LEVER (A), RECORDING
308	3-489-077-11	SCREW, MOTOR
309	3-489-310-XX	SPRING, TENSION
310	3-499-042-XX	BELT, COUNTER
311	3-513-012-00	SHAFT, RIVETING, SIDE PLATE(A)
312	3-513-237-01	PLATE
313	3-513-237-11	PLATE
314	3-536-499-00	SPRING, COMPRESSION
315	.....	
316	3-538-051-00	RUBBER, BRAKE
317	3-539-237-00	SPRING (3), COMPRESSION
318	3-539-259-00	SPRING, TENSION
319	3-549-861-00	SPRING, TENSION
320	3-553-029-00	CUSHION, MOTOR
321	3-556-464-11	SPRING, TENSION
322	3-558-612-00	PLATE, LOCK, PAUSE
323	3-558-620-00	GEAR, REWIND
324	3-558-621-00	CLAW, REEL TABLE
325	3-558-652-00	SPRING
326	3-558-708-01	WASHER, STOPPER
327	3-558-708-21	WASHER, STOPPER
328	3-561-817-00	LEVER, ERASE HEAD
329	3-561-818-00	LEVER, REVIEW
330 ♣	3-561-824-00	LEVER, RP
331	3-561-825-00	LEVER, ERASE
332	3-561-827-00	PLATE (A), HYSTERESIS
333 ♣	3-561-831-00	LEVER (B), RECORD
334	3-561-832-00	SPRING
335	3-561-839-00	LEVER, FF
336	3-561-845-00	LEVER, S.OFF RELEASE
337	3-561-846-00	SPRING
338	3-561-849-00	LEVER (A), RECORD
339	3-561-851-00	SPRING
340	3-561-852-00	SPRING
341	3-561-853-00	SPRING
342	3-561-858-00	BRACKET, HEAD
343 ♣	3-561-869-00	LEVER (C), PAUSE BUTTON
344 ♣	3-561-870-00	LEVER (C), REC BUTTON
345 ♣	3-561-872-00	LEVER (C), STOP BUTTON

MECHANISM SECTION

No.	Part No.	Description
346 ♣	3-561-874-00	LEVER (C), FWD BUTTON
347	3-561-883-00	SPRING, TENSION
348	3-561-884-00	SPRING, TENSION
349	3-561-890-00	CYLINDER
350 ♣	3-561-891-00	ROD
351	3-561-897-00	SPRING, TENSION
352	3-563-907-00	PLATE (VS2), LOCK, BUTTON
353	3-563-909-00	LEVER (D), RECORD
354	3-563-911-00	SPRING (VS2)
355	3-563-922-00	BASE, HEAD
356	3-564-301-00	LEVER (A), RECORD PREVENTION
357 ♣	3-564-302-00	LEVER (B), RECORD PREVENTION
358 ♣	3-564-303-00	LEVER (S), EJECT
359	3-564-304-00	BELT (S1), CAPSTAN
360 ♣	3-564-305-00	SHAFT (S1), BUTTON
361	3-564-332-00	SPRING, COMPRESSION
362	3-564-333-11	SPRING, COMPRESSION
363	3-564-335-00	TABLE (B), REEL, S SIDE
364	3-564-337-00	SPRING
365	3-564-338-00	SPRING
366 ♣	3-564-339-00	SPACER, PL
367 ♣	3-564-340-00	LEVER (S4), BUTTON, FF
368	3-564-343-00	BUTTON, MD
369 ♣	3-564-344-00	LEVER (A), REC
370 ♣	3-564-346-00	PLATE, SHIELD, HEAD
371 ♣	3-564-347-00	ARBOR, MOVABLE
372 ♣	3-564-348-00	ARBOR, FIXED
373 ♣	3-564-352-00	RETAINER (S4), THRUST
374 ♣	3-564-354-00	LEVER (S4), BRAKE
375 ♣	3-564-355-00	LEVER (S4), BUTTON, REW
376	3-564-357-00	SPRING, TENSION
377	3-564-358-00	TENSION (PU) (S4)
378	3-564-359-00	SPRING, TENSION
379	.....	
380	3-564-361-00	LEVER (B), RECORDING
381	3-564-362-00	BRACKET, MOTOR
382	3-570-205-00	SCREW, THRUST
383	3-570-206-00	SPRING, TENSION
384	3-571-315-00	SPRING
385	.....	
386	.....	
387	3-573-464-00	SPRING, COMPRESSION
388 ♣	3-578-377-00	ROLLER
389	.....	
390	3-701-465-00	SCREW, WASHER HEAD TAP TIGHT

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MECHANISM SECTION

No.	Part No.	Description
391	3-701-466-00	SCREW, WASHER HEAD TAP TIGHT
392	3-701-788-XX	SPRING, TENSION
393	7-621-775-40	SCREW +B 2.6X8
394	7-621-955-55	SCREW,TOTSU PWH 2X8
395	7-624-108-04	STOP RING 4.0, TYPE -E
396	7-624-190-11	STOP RING 3, TYPE-CS
397	7-624-190-81	STOP RING 2, TYPE-CS
398	7-671-112-01	BALL, STEEL
399	7-671-113-01	BALL 3MM, STEEL
400	7-682-148-01	SCREW +P 3X8
401	7-685-534-24	SCREW, TOTSU PTPWH 2.6X8, TYPE2
402	7-685-646-81	SCREW +BVTP 3X8 TYPE2
403	7-685-647-19	SCREW +BVTP 3X10 TYPE2 N-S
404	7-685-648-11	SCREW +BVTP 3X12 TYPE2 N-S
405	7-685-780-01	SCREW +PTT 2X3 (S)
406	7-685-792-01	SCREW +PTT 2.6X6 (S)
407	7-685-862-01	SCREW +BVTT 2.6X6 (S)
408	7-687-134-21	SCREW, TOTSU PTP 2.6X8 TYPE2
409	7-687-202-21	TOTSU PTPWH 2X4, TYPE 2, SLIT
410	.....	
411	7-687-233-21	SCREW, TOTSU PTPWH 2.6X6,TYPE2
412	7-687-702-39	SCREW, TOTSU BTT 2.6X5
413	A-3102-019-A	CHASSIS (S) SUB ASSY, MECH
414	.....	
415	A-3109-013-A	FLYWHEEL ASSY
416	A-3110-004-A	PINCH ROLLER ASSY
417	A-3130-016-B	TABLE ASSY, REEL, S SIDE
418	A-3130-020-A	TABLE ASSY, REEL, TAKE-UP
419	A-3136-014-A	IDLER COMPLETE ASSY, FWD
420	A-3136-019-A	IDLER COMPLETE ASSY (VS2), FR
421	.....	
422	X-3561-801-0	IDLER ASSY, FWD
423	X-3563-902-0	IDLER ASSY, FR (VS2)
424	X-3564-301-3	PULLEY (2400), MOTOR
425 ♦	X-3564-302-0	CHASSIS ASSY, AMS
426 ♦	X-3564-303-0	PLATE ASSY, LOCK, AMS
427	.....	
428	X-3572-101-0	EJECT ASSY, SOFT

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501 ♦	1-535-120-00	TERMINAL
502	1-548-532-00	COUNTER
503 ⚠	1-556-281-00	CORD, POWER
504 ♦	1-561-675-00	SOCKET, CONNECTOR 5P
505 ♦	1-561-676-00	SOCKET, CONNECTOR 6P
506 ♦	1-602-735-00	PC BOARD
507 ♦	1-607-693-00	PC BOARD, POWER
508 ♦	1-607-695-00	PC BOARD, JACK
509 ♦	1-607-697-00	PC BOARD, SWITCH
510 ♦	1-607-698-00	PC BOARD, LEVEL LED
511 ♦	1-607-699-00	PC BOARD, LED
512 ♦	A-3236-969-A	MOUNTED PCB, RADIO
513 ♦	A-3270-107-A	MOUNTED PCB, AUDIO
514 ♦	A-3273-053-A	MOUNTED PCB, CONTROL
ANT	1-501-231-00	ANTENNA, TELESCOPIC (SW/FM)
CF1	1-527-795-71	FILTER, CERAMIC
CF2	1-527-795-71	FILTER, CERAMIC
CFT	1-403-144-00	IFT (TRIPLE TUNE)
CNJ101	1-507-500-00	2P PIN JACK
CNJ201	1-507-500-00	2P PIN JACK
CNJ302 ♦	1-561-673-00	SOCKET, CONNECTOR 3P
CNJ801 ⚠	1-561-922-00	CONNECTOR, POWER 2P
CNP301 ♦	1-560-557-00	PIN, CONNECTOR 4P
CNP302 ♦	1-560-556-00	PIN, CONNECTOR 3P
CNP303 ♦	1-560-559-00	PIN, CONNECTOR 6P
CNP304 ♦	1-560-558-00	PIN, CONNECTOR 5P
CP1	1-231-677-00	FILTER, BANDPASS
CT1	1-151-361-00	CAP, TUNING, POLYETHYLENE
CT2	1-151-361-00	CAP, TUNING, POLYETHYLENE
CT3	1-151-361-00	CAP, TUNING, POLYETHYLENE
CT4	1-151-361-00	CAP, TUNING, POLYETHYLENE
CV1	1-151-361-00	CAP, TUNING, POLYETHYLENE
CV2	1-151-361-00	CAP, TUNING, POLYETHYLENE
CV3	1-151-361-00	CAP, TUNING, POLYETHYLENE
CV4	1-151-361-00	CAP, TUNING, POLYETHYLENE
D1	8-719-768-71	DIODE 1S2687S-1
D2	8-719-815-55	DIODE 1S1555
D3	8-719-815-55	DIODE 1S1555
D4	8-719-026-11	DIODE 1T261
D301	8-719-175-07	DIODE RD7.5E
D302	8-719-130-07	DIODE RD3.0E
D601	1-806-037-11	DIODE LT-3001P (LED BLOCK)
D801	8-719-500-34	DIODE S3VC40
D802	8-719-501-34	DIODE S3V40R

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Ref.No.	Part No.	Description
D901	8-719-900-41	DIODE SLP141B
D902	8-719-900-41	DIODE SLP141B
D903	8-719-815-55	DIODE 1S1555
ECM101	8-814-188-00	MICROPHONE, C-1008B
ECM201	8-814-188-00	MICROPHONE, C-1008B
HE101	8-658-096-02	HEAD, ERASE EBF5-36
HRP101	8-829-373-40	HEAD, REC/PB (PP181-3602D)
HRP201	8-829-373-40	HEAD, REC/PB (PP181-3602D)
IC1	8-759-320-26	IC HA12026
IC301	8-759-932-80	IC BA328
IC302	8-759-112-77	IC UPC1277H
IC303	8-759-905-47	IC BA338
IC601	8-759-814-05	IC LB1405
J101	1-507-578-00	JACK
J201	1-507-578-00	JACK
J301	1-507-638-00	JACK
L1	1-408-551-41	MICRO INDUCTOR 1UH
L2	♦;1-425-867-00	COIL, FM RF
L3	1-459-266-00	COIL, WITH CORE
L4	1-401-724-21	ANTENNA, FERRITE-ROD, MW
L401	1-408-703-00	MICRO INDUCTOR
L451	1-408-703-00	MICRO INDUCTOR
L901	1-408-159-00	MICRO INDUCTOR 3.3UH
M901	8-835-033-01	MOTOR, DC (DNE-3001B)
PM901	⚠.1-454-296-00	SOLENOID, PLUNGER
Q1	8-729-883-92	TRANSISTOR 2SC2839
Q2	8-729-806-84	TRANSISTOR 2SC668-SP
Q3	8-729-883-92	TRANSISTOR 2SC2839
Q4	8-729-671-14	TRANSISTOR 2SC710-14
Q5	8-729-671-13	TRANSISTOR 2SC710-13
Q6	8-729-671-14	TRANSISTOR 2SC710-14
Q7	8-729-671-14	TRANSISTOR 2SC710-14
Q8	8-729-671-13	TRANSISTOR 2SC710-13
Q9	8-729-671-15	TRANSISTOR 2SC710-15
Q101	8-729-665-47	TRANSISTOR 2SC1362
Q102	8-729-660-37	TRANSISTOR 2SC1363BLU
Q103	8-729-660-37	TRANSISTOR 2SC1363BLU
Q201	8-729-665-47	TRANSISTOR 2SC1362
Q202	8-729-660-37	TRANSISTOR 2SC1363BLU
Q203	8-729-660-37	TRANSISTOR 2SC1363BLU
Q301	8-729-663-47	TRANSISTOR 2SC1363
Q302	8-729-177-32	TRANSISTOR 2SD773
Q303	8-729-177-32	TRANSISTOR 2SD773

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q401	8-729-660-37	TRANSISTOR 2SC1363BLU
Q451	8-729-660-37	TRANSISTOR 2SC1363BLU
R308	⚠.1-212-851-00	FUSIBLE 5.6 5% 1/4W F
RV1	1-226-236-00	RES, ADJ, CARBON 10K
RV401	1-228-671-00	RES, VAR, SLIDE 100K/100K
RV402	1-228-673-00	RES, VAR, SLIDE 100K/100K
RV403	1-228-672-00	RES, VAR, SLIDE 10K/10K
RV404	1-228-670-00	RES, VAR, SLIDE 20K
RV451	1-228-671-00	RES, VAR, SLIDE 100K/100K
RV452	1-228-673-00	RES, VAR, SLIDE 100K/100K
RV453	1-228-672-00	RES, VAR, SLIDE 10K/10K
RV454	1-228-670-00	RES, VAR, SLIDE 20K
S101	1-552-686-00	SWITCH, SLIDE
S102	1-554-193-00	SWITCH, LEVER-SLIDE
S401	1-554-140-00	SWITCH, PUSH
S901	1-552-612-00	SWITCH, LEAF
S902	1-552-804-00	SWITCH, LEAF
SP101	1-503-155-00	SPEAKER
SP102	1-503-154-00	SPEAKER
SP201	1-503-155-00	SPEAKER
SP202	1-503-154-00	SPEAKER
T1	1-405-655-00	COIL,MW OSC
T2	1-403-952-00	TRANSFORMER,DISCRIMINATOR
T3	1-403-953-00	TRANSFORMER,DISCRIMINATOR
T4	1-404-041-00	COIL,AM DETECTION
T301	1-433-206-00	TRANSFORMER, BIAS OSCILLATOR
T801	⚠.1-447-349-00	TRANSFORMER, POWER

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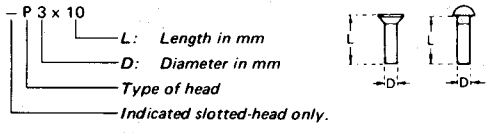
1/4 WATT CARBON RESISTORS

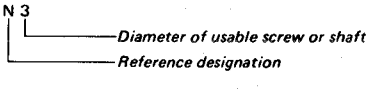
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

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